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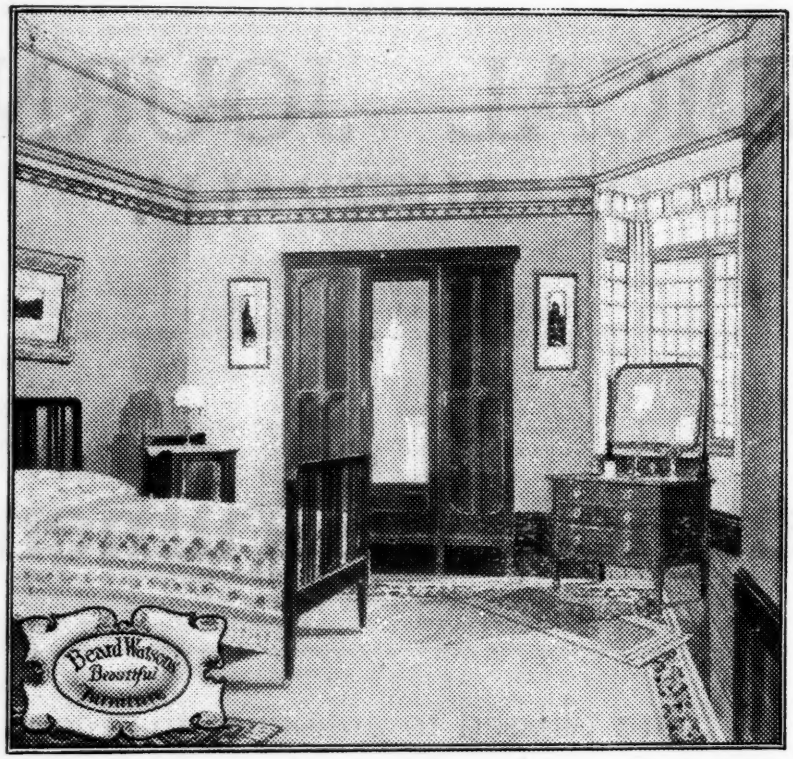

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FEEBLE-MINDEDNESS AND DELINQUENCY.[1]

BY MORRIS GAMBLE, L.R.C.P., L.R.C.S. (Edinburgh).
Melbourne.

THE problem of the feeble-minded is the most important and vital social question of the present day, for on its successful solution or otherwise depends the rise or fall of the nation. If the matter be grappled with in a decisive manner we shall rise most inevitably, but if nothing be done, then we shall just as inevitably degenerate in a woeful degree and it is this sociological aspect of the problem that I wish to emphasize.

It is the bounden duty of our Association to put its hand to the plough of racial betterment and steadily to keep the plough moving until the rank weeds of degeneracy and all they portend have been eradicated and their recrudescence prevented. To our section of this Branch of the British Medical Association the general body must look for guidance, therefore it is to be sincerely hoped that our contributions to the ensuing congress will be concentrated almost entirely on the only subject that really matters, namely the limitation of the unfit. In this way we shall adhere to the policy of the congress, which is to be preventive medicine. There are degrees of feeble-mindedness ranging from the crass idiot exercising fewer instincts than a four-footed animal, through imbecility (with or without epilepsy) and the higher grade imbeciles and morons, to the feeble-minded and mental defectives or backward children, some of whom are found to be subnormal only after expert examination.

Epilepsy is a common concomitant of feeble-mindedness. At least one-third of the idiots and imbeciles in Kew Asylum are epileptic and in drawing up a definition of feeble-mindedness I would include the great majority, if not all, of our young uncertified epileptics. *Post mortem* examinations at Kew Asylum show that mainly from a syphilitic stock does the epileptic spring.

That there is a pressing need for legislative action to be taken to deal effectively with the problem of the mental defective has been patent to our Association for many years past and there is no necessity therefore for me to dwell on that matter at this meeting. So far, however, the problem has only been touched remedially in Australia in a tentative though futile manner. We still await the awakening of the public to the danger hovering over the Commonwealth and we also await the advent of a strong forceful legislator who, endowed with foresight, will

[1] Read before the Section of Psychiatry and Neurology of the Victorian Branch of the British Medical Association, on April 16, 1923.

recognize the gravity of the national menace arising from the existing freedom of the mental defective and who will provide laws and the means for the segregation and other control of the feeble-minded, and introduce amendments to the marriage laws for the prevention of the marriage of the biologically unfit, whether degenerate or diseased. As like breeds like, so the unfit procreate the unfit and it is a deplorable fact that the unfit are unfortunately fecund.

The two fundamental causes of mental deficiency are heredity and environment, heredity being the more potent factor. The pathological findings during the past ten years in the Victorian Lunacy Department by Dr. W. A. T. Lind demonstrate conclusively that in regard to the feeble-minded the term heredity is chiefly a euphemism for congenital syphilis, either parental or grand-parental. I wish particularly to lay stress on this fact, as it clearly and unmistakably points to one of the ways in which action must be taken if we are to face the question squarely with the fixed intention of striking at the root of the menace. This important pathological observation concerning the nature of heredity in relation to the feeble-minded solves in a measure the vexed question as to who shall be allowed to procreate and who shall not. Were I to continue my remarks for hours I could not utter a statement more pregnant with truth than the one just made, nor one of more far-reaching value in any efforts that must be adopted to limit, if not prevent, the wholesale and continuous deterioration in the moral and physical well-being of the nation that is so obvious to the trained observer and that is accentuated by each succeeding year.

Hitherto the only measures adopted in Victoria and elsewhere in the Commonwealth to cope with the huge problem have been the provision of idiot asylums for certified patients similar to that established thirty-five or forty years ago at Kew by a former Inspector-General of the Insane, Dr. V. J. McCreery. In addition there has been the establishment a few years ago in Victoria of two non-residential special schools by the Education Department for mentally defective or backward children. From these schools, after attaining the age of fifteen or sixteen and before, the pupils are turned adrift without the slightest supervision or control that is so imperatively necessary for them at that critical age. Could there be conceived anything more ineffective than this educational policy in its present form? This scheme of non-residential special schools is largely one of misdirected energy and is utterly unserviceable as a therapeutic measure. To be of any practical use such schools must be adjuncts to a colony.

A very large proportion of the mental defectives are incapable of education in the scholastic sense of the word, though many of them can be trained manually to become hewers of wood and drawers of water. If this segregation, permanent in the majority of instances, be carried out in farm-industrial colonies, taking the form of a little cottage town with adequate provision for healthy recreation and entertainment, the lot of the mental defective may be made comparatively happy. Such colonies, if controlled by the right officials, would be in the main self-supporting. Provision would of course be made in these colonies for special educational classes for those who, after a mental examination, were deemed educable to any extent.

Considerable training, experience and knowledge of the motives and driving forces of human conduct are required for the proper study and classification of the feeble-minded. The main objective of such study should be a therapeutic one, *id est*, to find out what treatment is best adapted for each particular patient in order to effect the greatest benefit to the individual and to society.

Permanent segregation will not be necessary in all instances. Each defective must be examined individually, so as to obtain a clear comprehension of his personality. This study shoud be carried out under some generally adopted scheme, so that valuable and uniform statistical results may in time be forthcoming. Such results will prove most helpful to future workers in this poorly cultivated field of research. In this connexion I commend to your notice, with a view to its adoption when the time arrives, the plan enunciated by Dr. William Healy, of Chicago, in his book *The Individual Delinquent*. His method of attack is scientific, systematic and devoid of fads; it possesses also the added value of eliminating as far as possible the personal element or personal equation in evaluating the data obtained and in making deductions from the summaries.

Dr. Healy's schedule of data consists of the following: Family history (especially all aspects of heredity), developmental history (including antenatal conditions), environment, mental and moral development, anthropometry (including photography), medical examination (physical, neurological and psychiatric), psychological, mental testing and psychological analysis, crime or delinquency, diagnostic and prognostic summary, follow-up records and subsidiary records. These subsidiary records consist of a card system or charts for statistical purposes.

In 1912 it was estimated by a Royal Commission that there were, in round numbers, 150,000 mentally defective persons in England and Wales, apart from the certified insane and that 44% of them needed to be segregated either in their own interests or for the public safety. In Scotland 34% and in Ireland 66% of the total number of mental defectives needed segregation for the same reasons.

Making a calculation for Australia based on the English figures, I venture to estimate that there are in the Commonwealth approximately 27,000 to 30,000 mental defectives (including the certified insane) or 0.5% of the total population.

At present those 27,000 defectives (exclusive of those permanently in asylums) are free to lead their irresponsible lives and, being incapable of much self-control, they are productive of vice and crime, misery and worse to society and themselves. They are at perfect liberty to beget offspring as degenerate as, if not more so than themselves, which they do with appalling assiduity. That is, I admit, a repetition, but there is a purpose in the repetition.

Then again there is the economic aspect. What

a continuously increasing and wasteful expenditure defectives involve in the maintenance of our asylums, goals and hospitals ! A veritable white man's burden is placed on the shoulders of the purblind taxpayer. How long will he be content to remain purblind, or we to allow him to continue so benighted? A sum of £300,000 a year is expended on the maintenance of four thousand certified insane in Victoria alone and in New South Wales the annual expenditure is appreciably greater. No account is here taken of the cost of upkeep of our gaols, wherein hundreds of the definitely mentally enfeebled are housed. At least 20% of our adult prisoners are of the mentally enfeebled type. Many hundreds of beds in our general hospitals are occupied yearly by persons who should never have been born and each bed costs two shilling and sixpence an hour to maintain.

It devolves on us, therefore, as members of the section of this Branch of the British Medical Association possessed of expert knowledge on this subject, to arouse the public, to enlighten it as to the manifold dangers and largely preventible supertaxation lurking in the path of apathy and ignorance and inaction that is being pursued in regard to this canker on the body politic. It is an auspicious and gratifying sign of the times that in the matter of this social reform we are accorded the wholehearted support of one of the most powerful newspapers in Australia. I refer to *The Age*. Herein, to a great extent, lies our hope, namely that the press as a whole may urge and continue to urge the public to demand relief from its incubus of degeneracy. We have but to convince the public of the need for action and the public will act. What classes constitute the feeble-minded? Before answering that question, allow me to quote Dr. Tredgold's definition of the normal standard of mentality which is, he says, the presence of a mental faculty that enables the individual so to manage his affairs and regulate his conduct as to be able to maintain existence without external supervision or control. Some writers embrace in the definition of feeble-mindedness a wide range of mental defectives, such as idiots, imbeciles, morons, drunkards, drug-addicts, habitual criminals, the ineducable, the unemployable and epileptics. The Royal College of Physicians (London) defines the feeble-minded as persons who are capable of earning a living under favourable circumstances, but who are incapable from mental defect existing from birth or from an early age of competing on equal terms with their normal fellows, or of managing themselves or their affairs with ordinary prudence.

It is wise to cut one's cloth according to one's measure, hence it appears expedient to me, for the initiation of the reform and the limitation of the initial cost of segregation so as to bring it within the realm of practical politics, to confine or limit the term feeble-minded to idiots, imbeciles of all grades, moral imbeciles or morons, mental defectives or backward children and juvenile delinquents (if found mentally subnormal). Such individuals have brains which are not properly developed and which will never properly perform their function. The essential basis of feeble-mindedness, says Dr. Tredgold, is an imperfect or arrested development of the cerebral neurones.

After segregation has been established on such lines and has commended itself to the public, as it surely will, then the other groups of the feeble-minded could be taken under control of the State in colonies. All reforms meet with opposition and this opposition most often has its genesis in ignorance and prejudice; so also will the prophylactic measures herein advocated to deal with the unfit be opposed. Noisy, short-sighted objectors will protest vehemently against the violation of that pseudo-sacro-sanct right, the liberty of the subject. These opponents and the objects of their misplaced solicitude form, however, but a minority of the community at present. Is the State to be sacrificed for the sake of the unfit individual? No! The welfare of the State must in all things be the paramount consideration.

Essential and humanitarian as segregation is in the carrying out of this social reform, it is outdistanced in importance and value by legislative measures limiting or preventing procreation by the unfit. This is truly the keynote of racial betterment.

As I have repeated elsewhere since 1911, uniform amendments of the marriage laws are necessary throughout the Commonwealth and New Zealand. These should contain penal clauses to deal with non-observance of the statutes and thus make it an inescapable condition before any marriage is solemnized that both contracting parties produce certificates, authoritatively obtained and analogous to a medical certificate for life assurance, having particular reference, among other details, to the absence of syphilis or other constitutional disease in the contracting parties or in their immediate ancestors. Other defects of a mental or nervous character must also be regarded as a bar in some instances. This proposal is merely the blazing of the track. The construction of the highway of action is for the British Medical Association as a whole to undertake and for the Association to convince our legislators that it is a royal road.

Although all delinquents are not abnormal mentally, yet a large number of them on careful and expert examination will be found to present evidence of mental deficiency. Each delinquent, particularly of the juvenile class, requires to be studied individually from many aspects and until each is so studied we cannot obtain the scientific data essential for diagnosis, prognosis and treatment.

The habitual criminals or recidivists have the greatest significance for society, as they number 70% of all convicted persons. The leading authority in America on the relationship between mental enfeeblement and crime, Dr. Healy, of Chicago, to whose work reference has been made, says that practically all confirmed criminals begin their careers in childhood or early youth. He states that 58% of criminals are dishonest before reaching the age of fifteen years, that 14% become so between fifteen and sixteen and that all had shown anti-social tendencies before nineteen or twenty. He quotes with approval Dr. Matz, who asserts that 70% of first

imprisonments occur before the twenty-first year and that of recidivists the large majority received their first sentence before reaching the age of seventeen. Dr. Healy further points out that the chief recruiting age for the criminal is from fifteen to twenty. In view of these authentic statements, coupled with our knowledge that a great many criminals are feeble-minded, it is scarcely necessary to emphasize the need that exists for the adequate mental and psychological examination by trained observers of all juvenile delinquents presented before our major and minor courts in order to help the delinquent by properly adjusted treatment and to conserve society's interests. One of our metropolitan police magistrates, Mr. A. Aldridge Kelley, has already put into practice this wise and beneficent procedure in the courts over which he presides. He is to be congratulated on his pioneering efforts which the public regards with favour and desires to see extended.

That delinquency and feeble-mindedness are closely correlated should always be borne in mind. In support of this the following case may be cited which came under my notice in 1916 at the Idiot Asylum, Kew. A man contracted syphilis some years before his marriage and he became the father of ten children, all of course congenital syphilitics. The eldest born child died in the idiot asylum, an epileptic idiot; the next a girl, was sent to a reformatory for house-breaking when fifteen years old; the next child was a girl of thirteen who was wayward and a persistent wanderer; then came a boy of twelve who was imbecile and is now in the idiot asylum; the next, a boy of nine, was sent to a reformatory at that age for committing larceny. I lost sight of this interesting family and cannot say what happened to the younger members.

The best results of therapeutic measures for crime are obtained with the young. The adult hardened criminal is very difficult to treat on such lines. The life and affairs of the young can naturally be more easily re-adjusted, a proceeding that is so often essential with the young criminal. The recidivist, in spite of reprimands and punishments, continues to indulge in further anti-social acts. Is he to be regarded as normal and responsible and is gaol the fittest place for such an one, if young? The answer is obvious. A typical example of a juvenile recidivist, aged fifteen, was brought to me a few months ago by his mother. He was due to answer two charges of house-breaking in company. He was an imbecile of high grade, approaching the moron type. Well-developed physically, the forehead was low and narrow. He was unable to do the simplest addition or subtraction sum correctly, his writing was laboured and his reading was hesitating. He soon became fatigued mentally. His moral sense was deficient, he did not think his acts "very wrong" and was not at all worried at the prospect of being sent to a reformatory gaol for five years, he smiled at it in fact. He had a ready comprehension and replied rationally. He had no conversational initiative, but a moderately good memory. He made unreliable statements and said it was the excitement induced that prompted him to steal, though he was a dull, very unemotional boy. He said he was always in company when he robbed. One of his regular companions was with him for two years in a church home. He had started school at six years of age, but became and remained a persistent truant (a characteristic of these young anti-social units). At the age of twelve he was arrested and charged with theft and was sent to a church home for two years. Before that he had been in trouble many times for breaking windows of shops, throwing stones at trains, breaking into a showground office and stealing films and also for petty thefts from shops. After leaving the church home at fourteen, he got work at a factory for six months; he then was a messenger boy until arrested just before I saw him. Since leaving the home he has, in company, committed at least nine acts of delinquency, always theft, though he escaped detection.

In studying the juvenile delinquent, it is a fundamental consideration to ascertain the causative factors or driving forces towards crime, *id est* the intrinsic and extrinisic causes.

Dr. Healy will not admit that there is such a personality as the born criminal. That the criminal may be and very probably is born defective, but that he is made criminal by his environment is the dictum of that authority. In each case of delinquency there is a complexity of causation, the ætiology is many-sided. Reference has already been made to the schedule of data on which Dr. Healy conducts his investigations, and it will be seen how exhaustively he probes the problem of causation. His aim is to deal with the motives of human conduct in which our instincts play so prominent, if not the whole part. The criterion of mental deficiency is one of conduct, *id est* it is judged by what the individual does (and incidentally says) rather than by what he thinks. This applies not only to the psychology of the abnormal, but also to that of the normal, whether delinquent or otherwise. Dr. Healy reduces the matter to a concrete issue, namely, the study of the particular offence and the individual delinquent.

In the second of the two individuals described, the youth is said to have approached the moron type of mental deficiency. The moron or moral imbecile has been defined as "a person who from an early age displays some permanent mental defect coupled with strong vicious or criminal tendencies on which punishment has had little or no deterrent effect." The moron exhibits a congenital lack of the moral sense, that is, the ethical code has no appeal for him; he lacks also the faculty to regulate his conduct and he gives way to his instincts, both normal and abnormal, merely for the sake of immediate gratification. The moron is the most elusive, troublesome and dangerous of all types of the feeble-minded.

If I have succeeded in convincing the meeting that our section should be up and doing in these social reforms and that it should place the question of the feeble-minded in the forefront for discussion at the next congress, my labour has not been wasted, nor will your tolerant patience in listening to me go unrewarded.

THE HOSPITAL PROBLEM IN NEW SOUTH WALES.

By WILLIAM EPPS,
Secretary, Royal Prince Alfred Hospital, Sydney.

Whose Should be the Care of the Sick?

THE care of the sick is a national matter, just as much as education, the treatment of insane *et cetera*. It is of far more importance that there should be a live dunce than a dead scholar.

Conversely health matters are not specially of local concern. In England the local poor law infirmaries maintained by the rates and managed by Boards of Guardians are everywhere regarded as a failure as a means of providing adequate hospital treatment, except for patients with chronic disease and there is an insistent demand for a change of system.

Burdett's "Hospitals and Charities" (1919) says:

> Nothing but a radical change in its constitution will overcome this antagonism. The London labour party supports this view strongly. In a manifesto to the people of London on the recent election of guardians, it says that labour takes the view that the whole poor law system is bad and must be abolished. The poor law infirmary must be taken from the guardians and become a State hospital linked up directly to the Ministry of Health or indirectly to it through the County Councils.

There is no proposal to hand the poor law infirmaries or the voluntary hospitals over to the local governing bodies. Except in some of the very large cities of America, New York, Boston, Philadelphia, Chicago, St. Louis and Cincinnati, there are no hospitals run by local bodies and in those cities they are under the management usually of special expert bodies, not the councils themselves. In New Zealand there is no control by local municipal bodies. These find half the income by rates, but the management is in the hands of independent boards specially elected. The principal Dominion officers of the Health Department have informed me that the system is not satisfactory and there is a steady tendency to greater State control as against local control. In South Australia the new system provides for payments to hospitals by rate payers, but at present without control by local bodies. There is bound to be a demand for local control, however, and it is difficult to enforce taxation without representation.

The Systems Elsewhere.

There are numerous alternative schemes for hospital finance, apart from the purely voluntary system. The latter has so far prevailed in Great Britain and British hospitals have till lately carefully refused State or municipal help. Owing to the difficulties of keeping going on a voluntary basis, however, the majority of hospitals are now instituting a system of charges to or contributions by patients able to contribute to the cost of their maintenance and most hospital managers are anticipating that the State will ultimately have to help. Nearly all the hospitals report heavy deficiencies. The following systems of hospital finance are in force in English speaking countries:

Canada.

The principal hospitals are maintained very much on the lines of the Sydney and Royal Prince Alfred Hospitals here, with this difference. The Canadian hospitals have generally beds for paying or partially paying patients as distinct from the beds for free patients. In the case of the former all the profits go towards the maintenance of the whole hospitals. We have no intermediate hospitals. The income from patients represents a large proportion of the whole. In 1921 the Vancouver General Hospital, for example, received from patients $419,042 out of a total of $834,101; and the Montreal General Hospital $256,261 out of a total revenue of $467,105. The system of State and municipal subventions appears to be in somewhat of a state of flux and varies according to the province. In Vancouver in 1921 the city of Vancouver contributed $127,672 and the Government of British Columbia $107,950, making a total of $235,623. Other municipalities contributed $14,742. These were for general purposes, but in addition the city of Vancouver contributed $42,734 and the Government of British Columbia $39,451 for the special purposes of isolation wards, infants' department and annex for incurable patients. The two subsidies, therefore, totalled $317,807 out of $834,101, the balance being fees from patients, laboratories, X-ray department, electric and massage departments and so forth, while only $3,275 were received from subscriptions and donations. This is a large hospital, the average number of patients treated in 1921 being 817, though in 1919 as many as 1,021 patients were in hospital at one time. In the case of the Montreal Hospital there was no municipal grant last year, but the Provincial Government made a grant of $5,000. The last annual report, however, contains the following:

> The arrangement made a year ago with the city of Montreal to pay to the various hospitals a certain sum per patient for the care of those who are unable to pay for their treatment, has come to an end and the new scheme inaugurated by the Public Charities Act of the Provincial Government came into operation at the beginning of 1922. Under this new arrangement we receive $1.34 per day for each non-paying patient instead of $1.50 which we received last year from the city of Montreal.

There are similar conditions elsewhere. In Toronto the system more nearly approximates to that of Vancouver than Montreal. In 1916 (the last annual report available) out of a total income of $394,000 private patients' fees at the Toronto General Hospital totalled $120,000, partially paying patients $76,000, municipal in-patients $90,000 and municipal out-patients $96,300, while the Government grant was $28,000. In Winnipeg (1914) out of a total income of $257,000, the General Hospital received $132,000 from patients direct, $75,000 from the municipality of Winnipeg for patients under the *Charity Aid Act*, $13,000 from the Provincial Government of Manitoba and $4,000 from the Dominion Government. It is

almost impossible to ascertain the full income and expenditure from the report of the Calgary Hospital, but in 1917 $95,000 were received from patients, a $21,000 grant from the Alberta Government and a $68,000 grant from the city of Calgary.

In most of these hospitals the management is under a composite board. In Vancouver of a board of fifteen three are appointed by the Government of British Columbia, three by the City Council of Vancouver, eight are elected by the Governors and one by the medical staff. In Montreal apparently all the directors are appointed by the subscribers. In Toronto seven trustees are appointed by the State Government, five by the University of Toronto, five by the City of Toronto and seven are elected by the subscribers. In Winnipeg three trustees represent the University, seven represent the city, one minister represents the Government and eighteen are elected by the subscribers. In Calgary of a board of fourteen six are elected by the rate payers of the city of Calgary, three by the subscribers to the Calgary General Hospital, four by the medical profession of the city, with the Mayor of Calgary who is chairman of the board. I have seen all these hospitals which are of a high class.

The United States.

The hospitals of the United States are of three main classes. In some of the largest cities the municipality maintains hospitals, such as the Bellevue and Gouverneur Hospitals in New York, the City Hospital in Boston, the Charity Hospital in Philadelphia, the Cook County Hospital in Chicago, with others in Cincinnati, St. Orleans, St. Louis and St. Paul. The municipal hospitals in New York, Chicago, Boston and Philadelphia are all very large, ranging in size from one thousand beds upwards. They are general hospitals in the fullest sense, as they all take all classes of patients and more nearly approximate to our own Coast Hospital, but they do more surgery and the City Hospital at Boston and the Cook County Hospital in Chicago are the principal hospitals of those cities. These are practically "poor law" hospitals, as no fees are exacted and the municipality bears all the expenses. The management is in the hands of experts who are responsible to the municipal councils. The rest of the hospitals are self-supporting, that is, without State or municipal subsidization, but they are of two classes. Generally all of these hospitals have been established and built by either private individuals or religious bodies entirely with their own money. In the case of the religious hospitals these are organized and maintained almost solely by the people connected with the various churches. The Roman Catholics have many such, while the Presbyterians maintain some very fine hospitals in the larger cities, the Anglicans have numerous hospitals (such as St. Luke's Hospital), the Methodists have a few and there are several Jewish hospitals. Practically these are all maintained on the same footing and the figures regarding one will speak for most of them. To take the Presbyterian of New York, the following are the principal items of revenue:

Private room patients	$73,714
Ward pay patients	$78,682
City of New York for part maintenance (ward patients)	$27,566
Special Nursing	$78,112
X-Ray Service	$18,448
Out-patient Department	$14,080
Total revenue from these and similar sources	$315,339
The funds from other sources, such as church collections, donations, revenue from endowments totalled	$480,138

In effect, it will be seen, the sources of revenue apart from donations and the like are the patients themselves and the revenue from the better off patients goes towards the maintenance of those who can pay little or nothing. It is significant that in the years 1920 and 1921 the revenue exceeded the expenditure by $16,000 and $25,000 respectively. Apart from these hospitals associated with religious bodies, there are many others constituting the great majority of those in the States which were established by purely private beneficence, either individual or collective. Some of these date back 150 to 170 years and were established in the early colonial days before the revolution. Most of the cities have some hospitals and many of these, such as Mount Sinai, the Rooseveldt, New York, and St. Luke's in New York, Johns Hopkins in Baltimore and others are very beautiful places and are responsible for much of the best work, medical and surgical, done in America. The distinctive feature in all of these hospitals is that in their financial systems they are primarily business undertakings, the bulk of their income coming from patients and a smaller proportion from donations, though in some of the oldest institutions the income from investments is very large. In a few cases in smaller towns subsidies are received from the municipalities which, however, appear to have no controlling influence.

South Africa.

The conditions here vary very much, though generally the Government plays an important part in the finances, but not directly to a very great extent in the management or control. The largest hospital in South Africa is the Johannesburg Hospital, in Johannesburg, which is a State institution managed by a committee nominated by the Transvaal administration of eight lay members (two ladies) and three medical men and is apparently much on the same lines as the Coast Hospital in Sydney. It has in addition to the General Hospital three sub-hospitals, the Queen Victoria (maternity), the Fever Hospital and Otto Beit Convalescent Home, the General Hospital containing 593 beds and the others together 147 beds. There are honorary medical officers and all classes of surgical work are done. It is proposed shortly to establish a medical school here. There is separate accommodation for European and native patients in the ratio of about two to one. The patients are divided into part paying and free, the former representing 27% and the latter 73% of the admissions in the general hospitals; 34% and 66%

in the Queen Victoria Hospital, 81% and 19% in the Fever Hospital and practically all are non-paying in the Convalescent Hospital. There is also a large casualty department. The revenue for 1920-1921 comprised £190,928 from Government grant, £37,910 from patients' fees and apparently no donations or subscriptions are received. The average cost *per diem* was 12s. 6d. for Europeans and 5s. for natives. The nurses pay premia for training.

A somewhat similar set of conditions exists in the Cape Province so far as the metropolitan hospitals are concerned. There is a Cape Hospital Board, first appointed in 1912, which controls a number of institutions situated in different places near to Capetown, to a total of eleven. Of these the most important is the New Somerset Hospital. The Board is a composite one, something on the lines of that at Vancouver, twelve being elected by contributors, five by the Capetown municipality, one by Wynberg, Simon's Town and Durbanville municipalities and six by the Divisional Council of the Cape, while six are appointed by the Administrator and six by honorary visiting medical officers of the various hospitals (two being from the Somerset Hospital). This large board is divided into various committees for special purposes, one controlling buildings, grounds and equipment, another is the general purposes committee and another the finance committee. The attendances at both the board and committees appear to be good, especially the former. The committees each have special definite sets of duties allotted to them and the functions of the board would appear to be largely deliberative rather than administrative. There are also special committees for the management of the separate hospitals, that for the Somerset Hospital (the principal one) comprising eighteen persons (men and women) of whom six are appointed by the board, nine are elected by local subscribers and three by the honorary visiting medical officers. All the other hospitals have similar committees for all the institutions are upon a similar basis and the following total receipts from sources other than Governmental and local subsidies, represent the general returns.

Annual subscriptions	£1,471
Donations	3,639
Hospital Sunday Fund	133
Hospital Saturday Fund	844
Entertainments Fund	137
Total	£6,227
Receipts from investments	906
Fees, In-patients	13,033
Fees, Out-patients	796
Other Receipts	1,467
Total from the public	£21,429
Local authority, voluntary donations	18,494
Government grants in respect of voluntary contributions	37,302
Government grants in respect to patients' fees	2,570
Total	£79,795

In association with the Hospital Board there is a Women's Hospital Aid Board, the executive committee of which comprises leading ladies in the community and these collect in various suburbs for the benefit of the general funds of the board. About £2,000 is received in this way. It will be seen, therefore, that though the Government and municipalities assist and have a voice in the management of these hospitals, every effort is made to secure funds otherwise and apparently a heavy subsidy is paid on these contributions.

At Durban, Natal, there is a Natal Government Hospital, working under a Board of Management appointed by the Government in which patients are received on payment of £1 15s., £2 12s. 6d. and £5 5s. per week, but those who cannot afford to pay, are admitted free. Apparently this institution is much on the same lines as the Coast Hospital, in addition to wards for paying patients. Another hospital is the Albany General Hospital at Grahamstown, Cape Province, at which the admission is by medical recommendation, but paying patients pay from £1 15s. to £3 10s. per week. The Government grant is £2,248 out of a total revenue of £5,972. At Kimberley the large hospital of 320 beds is run on similar lines to that at Grahamstown, but there is no Government grant. The terms for paying patients range from £1 15s. to £5 5s. At King Williamstown the Grey's Hospital is a similer institution, but smaller. Payment ranges from 5s. to 10s. *per diem*, but there are free beds for those who cannot pay. At Pietermaritzburg, Natal, the Grey's Hospital management is in the hands of a composite board of six trustees, of whom two are the Administrator and the Mayor, two members nominated by the Government and two represent the Town Council. The terms of admission are 12s. 6d. for private patients, 5s. for those who can afford to pay and no payment for those who cannot afford to pay. I have not the details as to what income is received and who contributes to it.

At the Port Elizabeth, Cape Province, Provincial Hospital the governing body is a board of management of eighteen elective members; the terms of admission are 3s. 6d., 6s., 7s. 6d. and 12s. 6d. *per diem* or no payment for those who cannot afford to pay. Of the total income of £19,337 the Government grant represented £7,186, paying patients contributed £4,254 and the Government subsidy with respect to bequests and the like £1,365. There is a similar hospital at Uitenhage and another at Wynberg, both in Cape Province.

In Mashonaland all hospitals are under direct Government control, the administration being vested in the hands of the medical director of the British South Africa Company. Would-be patients must bring letters from a magistrate or householder and paying patients contribute from £5 5s. to £8 15s. per week.

Australasia.

Reference has already been made under the first heading of these notes to the conditions relating to those hospitals in Australasia which are partly maintained by local bodies. These, however, represent but a small proportion of the whole population

and the total hospitals and, except in New Zealand where the system is one of joint State or local organization with State subventions based on the revenue from rates, the revenue from local bodies is so far almost a negligible quantity. In New Zealand there are problems which have arisen to cause much controversy and it is probable that before very many years have passed some change of system must result. One of the greatest troubles there is that the hospital boards are not amenable to the local bodies and there is constant friction between those who provide the income and those who spend it. For example, it was recently reported in the New Zealand press (see the *Royal Prince Alfred Hospital Gazette*, July 15, 1922, page 27) that by mandate of the Government the Wanganui Hospital Board had raised the fees for hospital patients from £2 11s. per week to £3 3s., notwithstanding the fact that the cost per patient did not exceed £2 11s. per week. A strong deputation from the county councils which contribute to the income of the Hospital Board, pointed out that the hospital levy on the Rangitikei County for last year was £8,385, or an increase of 500% in eight years. The Chairman of the Hospital Board said he considered the taxation was wrong but the Government had failed to make a change. The upshot was that a motion for the proposed decrease of fees was lost. This matter was represented to the Minister for Health at a conference in Wellington last year (1922) when the Minister, the Honourable C. J. Parr, delivered an address in which, it is reported, he said he had had a good many complaints from local bodies about the high levies struck by the hospital boards and the necessity for economy. He recognized that it was the duty of the boards to see that there was sufficient money available for their ordinary expenditure, but they must remember that the Government and local bodies were "up against it" and whatever works could be reasonably postponed, should be left over until another day. For two years they would have to go on the "ca' canny" principle in the expenditure of public moneys and only things absolutely vital and essential must be proceeded with. They all knew his views on the question of subsidies. He believed there should be a new scale of subsidies, but when it was worked out it showed an increase of £60,000 or £70,000 per annum in the contributions by the Government and the Prime Minister had made it quite plain to him that in the existing circumstances it was impossible to make such an increased grant. It will be seen from these facts that the present New Zealand scheme is by no means unanimously accepted over there and I can verify the statements made as to the increase in cost and the great objection on the part of rate payers to the steady raising of the rates, in regard to the expenditure of which they practically have no voice. My own relations are amongst these and they do not approve of the present system. At the same time it has to be conceded that there is always sufficient money for the hospitals and the development which has occurred in regard to them, is very evident.

The experience of the new system in South Australia of allowing the hospitals to compel the rate payers in their districts to provide sufficient funds from the rates to carry on the hospitals is too recent to be reliable. It has only been in force for a year or two and is in its infancy. If to this be added Government control in the future, with consequent increase in expenditure, judging from New Zealand experience, there is bound to be an outcry and a demand either for complete control by the bodies providing the revenue or for dissociation from the State. In the case of most of the hospitals they are already either purely Government institutions or hospitals largely supported by the Government. The Adelaide Hospital is purely and simply a Government institution and it cannot be classed with the corresponding hospitals in the other large States of equal size. Having recently visited the Adelaide Hospital, I cannot but express this opinion with the utmost feeling of friendliness. I should be sorry indeed if this were to be the pattern on which our future hospital system is to be modelled. At the same time it is but fair to state that much valuable work is done at this institution. Other purely State hospitals exist at Burra Burra, Port Augusta, Port Lincoln, Port Pirie and Wallaroo. In the case of the Burra Burra and Port Augusta Hospitals the governing bodies are appointed by the Government and the bulk of the revenue is from Government subsidy. According to Burdett there are only fifteen hospitals in all in the State, so that the example is on a very small scale.

Tasmania may be classed to a great extent with South Australia. The two chief hospitals at Launceston and Hobart are to all intents and purposes Government institutions, the boards of management are Government nominees almost entirely and the Government makes good any deficiency in revenue, the Government grant comprising the bulk of the income. The other hospitals of the State are dependent largely on the Government for their income, but have each their own system of management.

In Western Australia the conditions are very much the same as in South Australia. The Perth Hospital is in much the same position as the Adelaide Hospital, though it is still managed by a board appointed by the Government on the old lines, whereas in Adelaide the management is now in the hands of a small board of three, with the Inspector-General of Hospitals as the chairman. The hospitals at Albany, Bunbury, Cue, Derby, Kalgoorlie, Northam, Pilbarra, Southern Cross and York are all Government institutions under the control of medical officers who are in the service of the State. Generally the terms of admission are the same, namely, free to the indigent and a payment of £2 2s. per week for those who can afford to pay. In most of these hospitals there is no honorary staff and the whole work is done by the Government medical officer who has certain privileges of private practice. Except for the Children's Hospital in Perth, which is much on the same lines as the hospitals of South Australia outside the Government institutions and is maintained by subscriptions, patients' fees and the like, with a Government grant, the remaining hospitals are very

small and the information regarding them is slight. Apart from its experience of State hospitals Western Australia does not afford an example which is of much value at this juncture.

There are thus only three remaining States which possess hospitals, though in some respects these are of more value from the point of view of exemplification than any of the others. In Queensland the conditions more nearly approximate to those of New South Wales than in any other State. The principal hospital is the Brisbane Hospital, which since March, 1917, has become purely a State hospital and it is now under the direction of the Home Secretary. Otherwise it appears to be managed much as formerly. There are honorary medical officers, a Medical Superintendent and resident medical officers. The Government finds all the necessary income, after allowing for payments by patients, subscriptions and so forth. The latest information available to me on this aspect of the question is for 1918, when the Government grant was £33,651, subscriptions £654, investments £52, patients' payments £1,735 and other receipts £1,717. There were also legacies of £4,472, but these were probably the result of wills made before the change in system took place in the previous year. The reason given in Burdett's book for the change of system is: "Owing to the failure of the voluntary system." The "voluntary system" consisted of a financial method under which subscriptions and donations were subsidized by the State to the extent of 30s. for every £1 received. The last year or two under the old system certainly demonstrated that a hospital of the size and character of the Brisbane Hospital could not be carried on upon a basis of subsidization to the extent of only 30s. for every £1 raised by donations. The Government refused to increase the amount. So, in the last report issued by the Board (for 1916) it appears that for that year there was a deficiency of £9,500 and as the Government would not provide further income, the Board had no recourse but to hand the control over to the Government. It is interesting, however, to see the results as shown by the figures for 1916 and those quoted above. In 1916 with 310 beds occupied, the receipts from voluntary sources were £3,995, in 1918 £654; in 1916 from patients £4,934, in 1918 £1,735. This shows the immediate effect of the taking over of hospitals by the State so far as revenue is concerned. The expenditure also rose from £30,714 to £42,400. Of course, it would be absurd to expect a hospital of the character of the Brisbane General to carry on upon a financial basis which might be satisfactory for smaller local hospitals, in regard to which it appears that generally the system has enabled the smaller hospitals to carry on. An examination of the accounts of most of the smaller hospitals shows that even when prices have been at the highest for years, the hospitals have been able to carry on upon the basis of a subsidy of 30s. for every £1 subscribed. This has, however, been due primarily to the receipts from the Golden Casket Art Union, which has been an important factor in the finance of the hospitals of Queensland for the past two years. A fair example of the average hospital is that at Toowoomba. Its total expenditure for the year ended December 31, 1921, was £20,378 and its revenue for the year was £20,747. The receipts from subscriptions, legacies, employees' donations, school collections and benefits and collection boxes were £4,773, from Government subsidy £7,602, from Golden Casket Art Union £3,201, from patients' payments £2,972, from local authorities for maintenance of patients with infectious diseases £1,529, the balance being from several small sources. Other reports to hand show that at Roma the expenditure was £7,432 and the revenue £7,383; at Townsville the expenditure was £14,529 and the revenue £13,919; at Longreach the expenditure was £5,571 and the revenue £5,210. These are fairly representative of the general hospitals outside of the Brisbane Hospital and the figures go to show that (with the art union, at any rate) the State subsidy of 30s. to the £1 is in average years adequate. The figures relating to subscriptions and donations show, at least, that the people are still prepared to support the quasi-voluntary principle, such as we know it, but are not prepared to support a hospital for which local bodies or the State alone is responsible. That verifies the experience in New Zealand, South and Western Australia and Tasmania.

The sole remaining State for consideration in regard to its hospital method is Victoria, and from my point of view this is the most important system in all the States as an example. The hospital system is next in size in Australasia to that of New South Wales and both systems are based on the principle of State subsidization, but with this difference. In New South Wales, apart from the few hospitals of larger size with special subsidies, all the hospitals receive subsidy at the rate of £1 for £1 on subscriptions and donations received. In Victoria all the hospitals receive subsidy on the basis primarily of the work done. In both cases the results from the point of view of support from the public are higher than elsewhere and the quasi-voluntary system is carried on. In New South Wales the system of £1 for £1 subsidy has latterly failed to enable the managing bodies of the hospitals to carry on without deficiencies. In Victoria there has been a similar result, but to a less extent as far as can be gathered. If it is desired to continue the quasi-voluntary system in this State, the Victorian method deserves careful investigation. The payment of subsidy in New South Wales is a straightforward affair; it is paid automatically, subject to applications being found to be in order. In Victoria the system is as follows:[1]

> The dominating principle of the allocation of the Government grant is on the "daily average." Considered along with this is the average length of stay, the cost per bed, the amount of local contributions and the general management and necessities of the institution, but all these side issues being satisfactory, the increased daily average gives a strong claim to an increased Government grant. It is very clear, therefore, that in certain circumstances it would be profitable for an institution to increase the daily average.
>
> The daily average is arrived at by the sum of the total number of days each patient has been in hospital, divided by the number of days in the year.
>
> It is evident, therefore, that the greater the number of patients who are admitted, and the longer they stay, the

[1] Report of the Inspector of Charitable Institutions for the year 1911, pages 6 and 7.

greater will be the daily average and the stronger will be the claim to an increased Government grant, provided the limit of stay has not been exceeded, thus avoiding the penalty attached to a lengthened stay.

The facilities for abusing an institution in this direction are many and that there is profit in such abuse is evident. From this point of view it matters little whether that abuse is intentional or unintentional.

Various opinions are held by those who have studied the question as to whether the dominating principle of the allocation could not be shifted from that of the daily average to that of local contributions and payment by patients with advantage, the other questions of management and necessity also receiving consideration.

It is argued if this were so, the energy of the committee for the unquestionable benefit of the institution (that is, by increasing the local contributions) would be rewarded, rather than abused (by unduly increasing the daily average), meeting with rewards as at present is possible. Where a district is poor, a special grant would meet the case.

It is difficult to make an adequate up-to-date comparison of the financial results of the two State systems from the point of view of the Government. It may be permissible, however, to make a comparison for the year ended June 30, 1921, in New South Wales and 1922 in Victoria, regarding which I can give the figures.

Accommodation, etc.	New South Wales. 1917.	New South Wales. 1921.	Victoria. 1922.
NUMBER OF HOSPITALS—			
Metropolitan		26	9
Country		129	50[1]
NUMBER OF BEDS AVAILABLE—			
Metropolitan	2,871	3,298	1,595[1]
Country	3,554	3,724	2,628[1]
	6,425	7,022	4,223
NUMBER OF BEDS OCCUPIED—			
Metropolitan	2,504	[2]	1,479
Country	2,151	[2]	1,334[1]
	4,655		2,813
EXPENDITURE, TOTAL—			
Metropolitan		£537,857	£297,260
Country		£455,743	£172,609[1]
		£993,600	£469,869
EXPENDITURE PER OCCUPIED BED (MEAN)—			
Metropolitan		——	£195
Country		——	£119[1]
REVENUE.			
GOVERNMENT GRANTS—			
Metropolitan		£225,332	£51,040
Country		£232,486	£20,165[1]
MUNICIPAL GRANTS—			
Metropolitan		——	£4,185
Country		——	£7,024[1]
SUBSCRIPTIONS ET CETERA—			
Metropolitan		£202,120	£78,896
Country		£153,740	£59,895[1]
PATIENTS' CONTRIBUTIONS—			
Metropolitan		£71,642	£54,118
Country		£60,588	£31,260[1]
MISCELLANEOUS—			
Metropolitan		£46,488	£10,296
Country		£15,566	£19,036[1]
Grand Totals		£1,008,972	£454,081

[1] Included in the figures relating to country hospitals in Victoria are those with reference to six hospitals which are also benevolent asylums.

[2] The average is not worked out in the New South Wales statistics.

SUMMARY OF ABOVE.

Accommodation, etc.	New South Wales.	Victoria.
Hospitals	155	59
Beds available	7,022	4,223
Beds occupied	(1917) 4,655	2,813
Expenditure	£993,600	£469,869

Revenue.	New South Wales.	Victoria.
Government grants	£458,818	£76,850
Municipal grants	——	12,111
Subscriptions, etc.	355,870	144,125
Patients' Contributions	132,230	91,752
Miscellaneous	62,054	29,061
Total Revenue	£1,008,972	£450,081

These figures are recent and they represent the conditions fairly in both States. It will be seen that in Victoria a population three-quarters of that of New South Wales is served with considerably less than half the number of hospitals in New South Wales; while the Victorian beds available represent 60% of those in New South Wales. The number of occupied beds in Victoria represents 2,813 as against 4,655 in New South Wales, which indicates that we have a larger hospital population than they. It would appear, also, that either we in New South Wales have too many hospital beds (at any rate in the country) or that Victoria has too few. It would seem, however, that an excess of nearly one thousand beds as in Victoria is a safe working margin. The figures relating to finance are even more striking. That it should cost more than twice as much to run an excess of occupied beds of 35% is remarkable and gives one to pause. In the same way that it should cost the State by way of subsidy more than six times as much as in Victoria is even more remarkable. It has to be acknowledged, of course, that in New South Wales there is a much greater area of country to be served, but one would think that with only a population of 25% more to be provided for an excess of 80% over Victoria in the matter of hospitals should be ample to meet the conditions of the larger State. This would mean a total of about one hundred hospitals for New South Wales as against fifty-nine in Victoria, while the number of beds available from these would still be greatly in excess of the percentage of beds to population in Victoria. Certainly the burden upon the State in Victoria is infinitely less than in New South Wales and the difference is so great as to warrant a close examination of the Victorian system.

Attention may perhaps here be drawn to the fact that in Victoria the idea is receiving official approval of intermediate hospitals to meet the conditions of those who are considered to be too well off to be admitted to the public hospitals, but are not well enough off to be able to afford to pay operation charges and hospital fees for private hospitals. This class represents a very big proportion of the popu-

lation of New South Wales as well as Victoria and these unfortunate people constitute a problem which all hospital managers feel has to be faced. In my position I know that patients of this kind come for admission almost every day, but have to be kindly but firmly informed that the hospital is not for them. In the new Victorian *Charities Bill*[1] provision is made for such hospitals. Referring to this matter the Melbourne *Leader* had the following on July 22, 1922:

It may be necessary that such institutions should receive something in the way of subsidy provided either by the State or through the medium of private appeal. The amount received from the patients would, however, meet the major portion of the expense.

The cost of the general hospitals should also be capable of reduction if these institutions are relieved from the care of patients who now impose themselves on their responsibility. The general hospitals are supposed to be solely for the relief of the destitute suffering, but under the present conditions this is largely a fiction. If strictly confined to their original and legitimate purpose, the strain on their resources would be greatly relieved. The intermediate hospital would then be given scope for the exercise of its functions. It is suggested that opposition might come from the medical profession. There is no reason to anticipate anything of the kind. Rather, expectation may be entertained of their sympathy and support. In other respects opposition to the bill seems to be vanishing. Now that its provisions are better understood, the misapprehensions created on their original suggestion are found to have been largely due to ignorance. The idea of a controlling board is no longer treated as inimical to voluntary effort. It is realized that there are many advantages to be obtained from a supervizing authority. If the Government is ready to proceed with its legislation, it should be possible to remove the reproach of insincerity and procrastination in dealing with this subject. Session after session has this measure been sacrificed through the absence of any serious purpose. We may hope on this occasion a different result.

General Deductions and Suggestions.

I have now given as much available data as should enable the reader to make comparisons between the hospital systems of the English speaking world and also between our own inter-State systems. Broadly speaking, It may be permissible for me to submit the following points:

The present New South Wales system fails for these reasons—

(*a*) There are too many hospitals and too many hospital beds, and these are not proportionately distributed.

(*b*) The cost to the State and to the public is out of proportion to the public benefit.

(*c*) The expenditure by the State of such a total subsidy as has been paid in the past should be more than ample to provide adequate hospital accommodation for the State, even supposing that there is a falling off in the public contributions from certain areas.

(*d*) The local bodies of New South Wales do not contribuate adequately to the cost of treatment of their own sick poor.

It is hardly necessary to labour the first point, but it may be mentioned that according to the statistics for the year quoted above (1917)—these figures are no longer published for some reason—there were in New South Wales no fewer than seven hospitals showing a daily average number of beds in occupation of one or under, seventeen of three beds, twelve of five beds and so on. There were thus thirty-six hospitals with an average between them of less than five beds in occupation, whereas in Victoria there were three hospitals only with less than an average of four beds and nine only with an average of less than ten. These thirty-six hospitals alone cost the State of New South Wales £11,526 in grants and subsidy, which amount, at the then cost per occupied bed (in 1917 approximately £100) would have have maintained in the Sydney or Royal Prince Alfred Hospitals (or other large hospitals) one hundred and fifteen beds. Of course, some of these hospitals were necessary, even if they had less than one patient *per diem*, but in many cases patients could have been treated in some other hospital within a reasonable distance. The main point is that the State is automatically compelled to subsidize these hospitals, according to the amounts collected by the residents, whether they may be necessary or not. There is no authority to say they are unnecessary and shall not receive subsidy. Again many other larger hospitals overlap. A glance at the hospital map of New South Wales shows that with towns a few miles apart often connected by railway there are numerous hospitals with all the staff and paraphernalia of a complete institution. If there were some recognized authority to say this or that hospital is unnecessary, that a base hospital shall be developed here, a district hospital there and a cottage hospital or a district nursing centre elsewhere, this authority would decide in favour of the withdrawal of subsidy which would speedily secure the closing of unnecessary hospitals.

This brings me to the point that in New Zealand Parliament has provided for a central Dominion authority in the Inspector-General of Hospitals who has an expert lay and medical staff. In Victoria, also, provision has now been made by Parliament for the constitution of a board of charity which shall represent all the interests involved and be presided over by an officer of high standing. This board will be non-political, will have the authority of a commission and will be the central authority to distribute the subsidy voted by Parliament. The board will be expected to carry out the following functions:

Powers of the Board.

It shall be the duty of the board, subject to the provisions of this Act—

(i.) To make or cause to be made careful inquiries into the administration and management of every subsidized institution or benevolent society; (ii.) to cause every subsidized institution to be inspected from time to time and at least once in every year; (iii.) to report to the Minister as to what charitable relief is required to meet the needs of the diseased, infirm, incurable, poor or destitute persons resident in Victoria, to recommend which institutions or benevolent societies should be subsidized, to recomment what sum of money should be paid from the fund and for what purposes to each subsidized institution or benevolent society and to suggest any amendments of existing legislation and proposals for future legislation desired for carrying into effect any of the objects or purposes referred to in

[1] From *The Hospital and Charities Act*, which was passed at the end of the 1922 session, the clauses dealing with intermediate hospitals have been elided.

the Act and in particular for improvement in and the prevention of overlapping in the administration of institutions and benevolent societies. The board may recommend to the Minister that any subsidized institution (not being a separate institution) be closed, that any two or more subsidized institutions (not being separate institutions) be amalgamated, for what purposes any subsidized institutions shall be used, that any prescribed conditions be attached to the payment to subsidized institutions of any sums out of the fund, that payment to any subsidized institution or benevolent society of any sum out of the fund be withheld with a view to the closure of such institution or the amalgamation thereof with any other institution or enforcing the observance by the institution or benevolent society of any of the provisions of the Act or of any regulation applicable thereto.

It is my opinion that only upon the appointment of some such body, based on the constitution say of the Sydney Harbour Trust, which shall be independent of political control and be called upon to make the most of any sum voted by Parliament each year, will rest the future success or otherwise of State subsidization on an economical footing should a Royal commission not be appointed. It might be left to this body to formulate principles for future subsidization which could be recommended to Parliament for adoption in place of the present *Hospital Act;* or Parliament in passing an Act to appoint such a board might lay down its future policy. My own view is that if the central board were composed of the right men, with a majority of experienced business men with hospital knowledge, it might well be left to submit to Parliament a practical scheme, based on careful investigation of our own and other State conditions. In the meantime it could administer the Act as it stands, with certain powers of variation which could be included in the Act of Appointment.

What scheme of hospital finance would be most acceptable and most effective is a matter for serious and careful thought. Without a doubt the present £1 for £1 system has built up a spirit of benevolence which it would be sinful to destroy by handing the hospitals over entirely to State or even partially to local government control. But the defects of the system as it stands are obvious. It is only necessary for some one in a small town to advocate the establishment of a hospital in which his patients can be treated. This arouses popular interest. A race meeting and a concert or two are held, the surrounding settlers are canvassed for subscriptions and before one knows about it, a new hospital is in being. There is no one to say: "Nay!" But while the indiscriminate opening of hospitals is to be deprecated, it is desirable that those who contribute so generously now, should be encouraged to continue to do so and this can be done best by allowing local committees (with perhaps an infusion of Government, municipal, industrial or friendly society nominees) to remain in charge. But the basis of subsidization must change. If I had the making of the change, I should substitute the Victorian system of subsidization according to the work done, with a maximum and minimum number of beds and a basis upon which occupied beds shall be the main point of determination, subject to a limit in the period during which patients shall, on the average, remain in hospital. In this way, the subsidy now frittered over many hospitals, doing little valuable work, could be made to provide adequately for the hospitals and beds which do the work. In this matter, of course, due consideration would have to be given to the hospitals which do the expensive work, such as heavy surgical operations, X-ray and pathological examinations. It would be absurd to compare for purposes of subsidy the beds in Sydney Hospital and those in Pambula Hospital. So that the central board would have to be possessed of full powers of discrimination and wide experience. Another point I would make is that the question of greater financial help from local governing bodies should be carefully thought out. This can be done in three ways:

(*a*) By special rates, the amount required to be determined by the hospital committee, subject to approval by the central board; (*b*) by payment on a fixed scale by the local bodies for treatment of residents resident within their areas, properly recommended and approved; (*c*) by municipal grants by way of donations or subsidy, based on the subscriptions locally collected.

I do not venture further in this matter, beyond saying that no doubt whichever system of these three be adopted, there must be representation of the contributing local body on the hospital committee.

I have now touched on the essentials which would have to be worked out in any change of system short of complete State control or complete control by local governing bodies. I regard both of these propositions as quite out of the question. We have no evidence that State-governed hospitals are in any way superior to those now managed by voluntary bodies and we have yet to see that local bodies in this country are capable of controlling such a complex organization as a hospital, with all its problems of medical men in their relation to the public, nurses, with their demands for shorter hours and higher pay, food, wages, building, repairs and additions and the thousand and one matters which daily agitate the minds of hospital managers, but which are quite unknown to the average person. The time has not yet arrived for local government control.

Then, apart from the statement, founded on British experience, that hospitals are matters for personal as well as public benevolence, there is the question of finance. State control connotes immediate loss of private subscriptions and donations —as seen in Brisbane, Adelaide and Perth—representing hundreds of thousands *per annum*. State control also means to a greatly increased extent paid medical officers and certainly it means higher wages for nurses and all other forms of labour, as we can see by comparison of the rates now paid in State and local institutions.

Therefore, I would say in conclusion let us not have yet State or local control, but State and (if considered desirable) local subsidization or contributions in some form. Let us also have industrial contributions. Let us retain the skeleton of the present system of State subsidization, but upon some more equitable plan than the present £1 for £1 method and upon that skeleton build up a new body which shall, as in Victoria, continue to stimulate not only the raising of local subscriptions, but also the carrying out of an adequate hospital system. Place the control of all these matters in the hands of a body of experts, who shall be handed each year by Parliament a specified sum, based on the previous year's experience, to be used in the way they may deem wisest for the development of a complete hospital system, differentiating between metropolitan and country, but providing for base, district and cottage hospitals, with bush nursing centres to fill in the outlying gaps. Then, I think, the hospitals of the State will be free of the ever present cry of want of funds; the State will be freed from an automatically increasing nightmare of subsidy and the sick poor will receive more fully that consideration which it is the desire of all to provide.

Reports of Cases.

SALPINGITIS WITH SINUS TO THE GROIN.[1]

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Clinical History.

M.P. consulted her doctor in the country for a small gland in the right groin which he dissected out. The wound did not heal thoroughly, a small discharging sinus persisted and resisted all efforts at closure. Applications of silver nitrate *et cetera* were tried for months without avail. On account of the tortuous nature of the tract a probe could not be introduced for more than two or three centimetres. The patient claimed to be a *virgo intacta* and refused pelvic examination. In order to diagnose the source of the sinus Dr. Edwards was asked to fill up the sinus with bismuth paste and take an X-ray photograph of the course and extent. The result showed a sinus shadow leading in the direction of the internal abdominal ring about two or three centimetres in length and a large shadow in the mid-line of the pelvic cavity. The paste evidently had made its way into the uterine cavity as it was passed *per vaginam* in a very short time. Even after several attempts X-rays failed to show any connexion between the sinus shadow and the uterine or middle line shadow.

Upon laparotomy, a condition such as shown in the diagram was found. The tubes were the seat of an old salpingitis. The fimbriated ends were sealed and they were filled with clear liquid. The right tube was kinked almost in hairpin fashion and the bend was adherent to the anterior abdominal wall in the region of the internal abdominal ring.

Remarks.

The X-ray picture is now easily explained. As the sinus was a non-muscular tube, the bismuth paste was retained, but the inner or cornual branch of the bent Fallopian tube which formed the intra-abdominal part of the passage leading from the groin to the uterus, is a muscular tube. When the paste passed in, peristaltic waves were set up and it was passed on so rapidly that, by the time the patient was arranged for the photograph, it had left on its journey for the uterus. That no paste ran into the blind or fimbriated branch of the tube was due to the fact that it was distended with hydro-salpinx fluid which on account of the acuteness of the bend was like an overfilled bottle and the oncoming bismuth found a much freer passage through the open cornual or uterine branch and was aided as well by the peristaltic waves moving in that direction. The left tube was sealed and contained fluid. Double salpingectomy cured the condition.

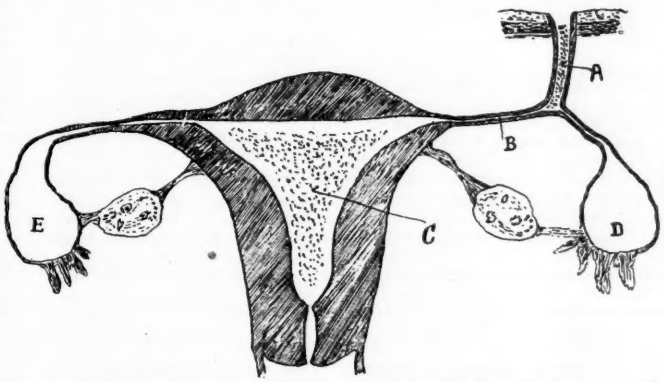

DIAGRAM REPRESENTING CONDITION FOUND AT OPERATION.
A = Silent part of sinus full of paste passing through groin and abdominal wall tissue to internal abdominal ring.
B = Active part of sinus composed of inner branch of the bent tube, the peristaltic muscular action of which passed the paste on so rapidly that no shadow was seen.
C = Paste in uterine cavity which retains it sufficiently long to give central shadow.
D = Blind or fimbriated end of tube filled with fluid which prevents paste from trickling into it.
E = Hydro-salpinx of left tube.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on June 8, 1923.

Reviews.

TUBERCULOSIS.

THE appearance of a second edition of Calmette's monumental work on "Bacillary Infection and Tuberculosis" being rendered necessary by the exhaustion of the first edition in a few weeks, the author has sought to include in it the most recent advances in the scientific study of the disease.[1] In the preface to the original edition the author states that it has been his intention to extract from the most important works of other writers and from his own researches the scientific principles upon which in the present state of knowledge the war against tuberculosis must be waged.

The book is divided into four sections. Part I. on the tubercle bacillus and the process of bacillary infection commences with an account of the tubercle bacillus itself, its staining and cultural reactions and the methods of isolation, its chemical composition and its "toxins." The most important chapters in this portion are perhaps those upon the mechanism of infection. Here the various possible routes of infection are discussed in detail. The author shows that,

[1] "L'Infection Bacillaire et la Tuberculose chez l'homme et chez les animaux; Processus d'Infection et de Défense Étude Biologique et Expérimentale," par A. Calmette; Deuxième Édition; 1922. Paris: Masson et Cie; Royal 8vo., pp. 644, with 31 figures in the text and 25 coloured plates. Price: Frs. 50 net.

while every portal of entry capable of introducing the bacilli into the lymphatic or blood circulation permits of the invasion of the lungs, in all susceptible animals including man tuberculosis in all its manifestations results in the immense majority of instances from a primary lymphatic infection which has its origin in the absorption of tubercle bacilli by the alimentary tract through the buccal, pharyngeal or intestinal mucosa. The author is strongly of opinion that, except in rare instances of massive infection, primary infection of the lungs does not occur.

The frequency of the various tuberculous lesions and their anatomical and pathological characters in infants, adults and the aged are discussed and are followed by a series of chapters descriptive of the lesions of individual organs and tissues. This section of the work is well illustrated by coloured plates. A chapter on the rôle of heredity is included. The author's conclusions on this important subject may be briefly stated to be that, while in some instances hereditary transmission may occur by means of infection of the placenta or in the act of birth, post-natal infection in the family circle is of much greater importance.

Part II. is devoted to the subject of infection in animals. The first portion descriptive of the method of experimental inoculation of animals is of interest mainly to the laboratory worker. But the accounts of tuberculosis in cattle and other animals are of more than passing interest to the practitioner. The differences between human and bovine form of tubercle bacilli are discussed, but the author regards them as differing because they are more or less adapted to human or bovine media. Experiments have been brought forward to show that the human type can be transferred to the bovine, but there is much doubt on the subject as natural infection of the animals experimented on was not excluded. In the chapter on the frequency and geographical distribution of infection among cattle figures are given from the various centres of Europe which reveal a remarkably high degree of infection. These figures are based in part on the tuberculin reaction and in part on figures from abattoirs.

A chapter is devoted to the rôle of bovine tuberculosis in the infection of man and to the milk question. Here will be found the figures relative to the type of bacillus most commonly found in various forms of tuberculosis. The question of the possible transmutation of the bovine to human form is again discussed and some clinical facts would tend to support this, but as the author points out, human tuberculosis is widely spread in centres where bovine tuberculosis is unknown. In the rest of the section the author deals with tuberculosis in other animals, birds and cold blooded animals. He also deals with other acid fast bacilli.

Part III. comprises the portion of the work which has reference to the defensive processes of infection and methods of diagnosis. The reactions on the part of the host to infection by the formation of enzymes and specific antibodies are described. From the point of view of diagnosis most interest will centre on the chapter on the tuberculin reaction and on the complement deviation reaction of Bordet and Gengou. On the former question Calmette's conclusions are of interest. The cutaneous reaction especially is indicated as being painless and without risk and capable of being employed in all circumstances. In adolescents and adults the reaction occurs so frequently that the test is of little interest. On the other hand, in young children the reaction is very valuable as evidence of recent infection. The complement fixation test is described at length and the reaction in the hands of Calmette and of other workers has given a high percentage of positive results. The divergent results of other authors is held to depend largely on differences in the antigen employed and for this reason much of the work that has been done, cannot be regarded as comparable.

Part IV., which concludes the volume, is on the subject of natural immunity and the process of immunization against tuberculous infection. The author has gone very thoroughly into the experimental work that has been done on the latter subject, and has laid down very clearly the causes of failure in the past and the lines upon which future work may yield results. In his opinion antisera afford little or no hope of success, but it may be possible yet to produce a prophylactic vaccine which will render the organism immune to subsequent infection. Many attempts have been made with this end in view and Calmette lays stress on the favourable results obtained in his own laboratory with tubercle bacilli whose virulence has been diminished by growth on a medium containing bile. So far his vaccine is advocated for the prophylactic inoculation of cattle and Calmette's plans for testing it on monkeys with a view to the adaptation of the vaccine for children were interfered with by the war.

This work is of interest in view of the successful results that have been claimed according to cable for a vaccine prepared by Professor Dreyer, of Oxford, and published in the lay press in dramatic terms.

A chapter on chemico-therapy has been added to the present edition; in this field also some hope is held out for the discovery of a specific for the cure of tuberculosis.

The whole work is well planned and carried out. The tremendous amount of research that has been performed on tuberculosis has been thoroughly culled and practically every investigation which has thrown the least light on the disease, even of a negative character, has been duly cited. The book is, in fact, a mine of information on the subject and practitioners, as well as laboratory workers, will find much of interest and profit in its perusal. The volume is well illustrated and, though no bibliography is given, frequent references to the literature will be found in foot notes.

PROTISTS AND DISEASE.

IN "Protists and Disease" Dr. J. Jackson Clarke details his search for the causative organism of such diseases as *molluscum contagiosum*, cancer, syphilis and small-pox and his wanderings in the fields of cryptogamic botany.[1] He calls his excursions the "Ideal Stumblings of a Beginner." While so engaged he has become a botanist of no mean order. The *Mycetozoa* particularly attracted him. Many medical men will remember the description of one of this group the "flowers of tan," the plasmodium of which moves like a gigantic amœba. Later it forms a sporangium, the spores of which give rise to flagellate zoospores. The study of such forms has been of interest to the author for years and he writes of them in an appreciative manner. His work on certain human pathological conditions is not of the same quality. An account of the nature of molluscum bodies found in *molluscum contagiosum* is given. These are generally accepted as the result of hyaline degeneration of epithelial cells, but not by the author. By keeping these bodies in water he has observed many curious changes and described the reproductive cycle for his parasite, but the difficulties of water culture are great and the forms assumed by lipoid substances on maceration are numerous and subtle.

The nature of the causative organism of *molluscum contagiosum* being settled to the author's satisfaction, he places the parasites causing small-pox, syphilis and cancer in their proper place naturally with a certain bias in favour of the cryptograms. The author raises to himself a monument of honesty and candour when he tells how a section of the seminal vesicles of an earth-worm came to be interpreted as an adenoma of a cat's lip. This book is not without interest to anyone with a knowledge of cryptogamic botany and, though the hypotheses advanced are mostly backed up by immature investigations, yet it may be that the author will see the *Mycetozoa* and their allies assume something of the importance he attaches to them. Meanwhile he pursues his heterodoxy in comfort, for this is the sixth book he has published on the same subject. Heresy and schism are only ecclesiastical sins.

[1] "Protists and Disease," by J. Jackson Clarke, M.B. (Lond.), F.R.C.S.; 1922. London: Baillière, Tindall and Cox; Foolscap 4to.; pp. xii. + 229, with one plate and 61 figures in the text. Price: 15s. net.

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Medical Achievements.

ON the occasion of the one hundred and fiftieth anniversary dinner of the Medical Society of London His Royal Highness the Prince of Wales and Mr. Lloyd George, as the chief guests, told the members something about themselves. Both were lavish in their praises of the medical profession and both paid a generous tribute to the advancement of medical science during the past one and a half centuries. Mr. Lloyd George adopted as the subject of his speech the achievements in medicine. It is true that the progress in the science of physiology, of pathology and of clinical medicine has been considerable. With this admission, it is necessary to allow that Mr. Lloyd George's remarks were not merely polite platitudes expressed at a social function for the purpose of pleasing his audience. They contained some justification, but they were not innocent of some exaggeration. It is well at all times to compare our knowledge with our ignorance, to attempt to weigh against our achievements the overwhelming amount of work yet to be carried out. Mr. Lloyd George spoke of the majority of the "bandits" that invade the human body having been discovered, docketed, identified, blacklisted, tracked to lairs and exterminated. The cause of some diseases, it is true, has been discovered and thoroughly unveiled. In the vast majority of pathological conditions the medical profession works on hypotheses, often on rather flimsy foundations. What passes as an irrefutable physiological fact one day, is disproved on the next. Stray facts have been garnered, but we cannot congratulate ourselves that complete knowledge is possessed in regard to any special function of the human body or any particular process that disturbs the health of the individual. There have been many remarkable achievements in the research into the essence of health and disease and some of these have borne fruit in reducing the incidence of certain diseases. But how little has been done with deliberation to prevent disease. Mr. Lloyd George dwelt for some time on the greater wisdom of preventing than curing, of excluding than banishing. He made use of the myth attributed to the Chinese of paying the doctor as long as the patient remained well. In theory this would be an admirable arrangement, but in practice it would prove impossible. The individual medical practitioner of today as of the past has not the power, not the knowledge to prevent disease under ordinary circumstances. It is possible to prevent disease, but only by concerted action of large sections of the profession. More knowledge must be gained. The individual practitioner will have to desist from the common fault of employing words that mean little or nothing and of postulating chemical or physical events that have not been proved to exist. Exactness in thought as well as in terminology is fundamental to real achievement. In the next place, the general practitioner will have to recognize that all medical knowledge is essential to the best practice. In other words he must be trained as a thorough scientist and he must be prepared to deal with the human body both in health and in disease in accordance with the best teachings in bio-chemistry and biophysics. He must regard himself as a unit in a great machine aiming at what Mr. Lloyd George fondly imagines has been achieved.

It is a healthful sign that so erudite an individual as the late Prime Minister of Great Britain should have referred to a saying of a great statesman that the first consideration of a minister should be the health of the people. While the medical profession must do its own delving and investigation, in the application of discovered facts it needs the assistance and guidance of governments. Disease can be prevented, not by the individual medical practitioner, perhaps not by a conclave of practitioners, but by the whole profession working together with the community. If infection is to be mastered, its banishment must be effected by legal means and with the authority of a compelling force. Human beings left to their own fancies and devices will never fashion their conduct along safe lines. There

will always be the tendency to do the wrong thing. Moreover, preventive measures cannot be thoroughly successful unless they are applied on a large scale. Let us remember that while we and others are prone to rejoice over the achievements of the past, we have advanced but a short distance along the very long road of scientific discovery. As Lord Dawson remarked, the members of the medical profession had gone past the stage of phenomena and had arrived at the stage of inquiry into causes. With redoubled energy and untiring effort this generation may contribute many stray facts to the sum of human knowledge concerning the body and its diseases.

ASSISTANTS.

IN the Annual Report of the Council of the British Medical Association, published in the Supplement to *The British Medical Journal* of April 28, 1923, the Council set out a series of ten "principles" which should govern agreements between principals and assistants. There is no explanatory argument attached to the paragraph nor will the matter be debated at the Representative Meeting at Portsmouth to be held this month. Copies of these principles have already been handed to the medical agents and will be included in the "Handbook for Recently Qualified Practitioners." The principles comprise obligations on the part of both parties to the contract. The obligations of the medical practitioner engaging an assistant, usually called the principal, are that he shall pay the assistant for his services at fixed periods, that he shall arrange for a holiday of the assistant, that he shall agree to a definite manner in which the contract may be determined, that he shall agree to a definite duration of the contract and that he shall be a member of a medical defence society during the whole period of the contract and shall agree to submit all disputes to arbitration for settlement. The obligations of the assistant are that he shall give diligent and faithful service and devote his whole time and attention to the practice of his principal, that he shall keep just accounts and pay over to the principal all moneys received on behalf of the practice, that he shall agree to the provisions for the determination of the contract and for its duration, that he shall undertake not to practise on his own account during the continuance of the contract and after its termination in accordance with the special provisions governing this matter and finally that he shall be a member of a medical defence society and agree to submit all disputes to arbitration for settlement. The tenth clause has exclusive reference to the working of the *National Health Insurance Act.*

The position of the assistant in Australia does not differ materially from that of the assistant in the United Kingdom. He is usually a young and inexperienced man who is tempted to gain an entrance into medical practice without financial risk and without the utilization of capital. He knows little of the pitfalls of the situation; his understanding of medical ethics and of the business side of the contract he is about to make is limited and he has yet to learn the ways of medical agents. In these circumstances it is essential that his interests should be safeguarded in any contract or agreement he may enter upon and he should be bound in definite terms in regard to his obligations and the limitations of his powers and rights as assistant. At the same time the medical practitioner who, finding that his practice has grown too large to be managed entirely by himself, endeavours to hold it together with the aid of a salaried assistant, must recognize the fact that both parties to the contract have special rights and privileges. The Council of the British Medical Association postulates the diligent, faithful and undivided service of the assistant as the fundamental condition of all agreements. The assistant who gives less than this, must expect disagreement and want of harmony in his professional relations with his employer. But the principal, too, must do his fair share of the work and must maintain a high standard of professional efficiency and ethical conduct, so that his subordinate will not have reason for complaint. The contract must be drawn on comprehensive business lines. Mutual trust and friendly relations are easier to maintain if the agreement contains provisions for all ordinary contingencies and if its terms are unambiguous and explicit. Disputes often arise because one or other party has misunderstood the real nature of the contract and seeks to gain an

advantage in regard to some matter not specifically provided for in the agreement. The principal should remember that under usual conditions an assistant to a general practitioner is an apprentice who should receive guidance and even tuition. A man with a strong character and strict ideals can exercise a beneficent influence over his assistant to the great advantage of both. He should endeavour to gain the complete confidence of his younger colleague and to establish professional and social relations between them which would tend to prevent misunderstandings and the thousand and one points of petty differences which mar so many engagements of this kind.

If the two cannot work amicably together, either because of some personal antagonism or because anything happens to destroy the mutual trust which should exist, the contract should be determined. In this connexion the suggestion of the Council is very wise. Under rare conditions the parties may settle their differences and wind up their affairs without the intervention of a third person. But as a rule, it is far more dignified for them to refer the matters in dispute to a competent body, such as a medical defence society, for arbitration. If the contract contains a clause providing for this purpose, there would be no need of threats of legal proceedings, no "washing of dirty linen" in public, no contest that must lead to a widening of the breach. Again, if the duration of the agreement is fixed, it is of immense advantage that the outgoing assistant is bound under definite terms not to practise within a certain area for a specified length of time. At present the agreements between assistants and principals are often loosely drawn and are lacking in definiteness. This is not necessarily the fault of the medical agents who have brought the parties together in the first instance. No medical agent can be expected to know whether any two medical practitioners will work well together. But if the agents in Australia be urged to insist on the introduction of provisions to satisfy the nine principles of the Council of the British Medical Association into all agreements between the engaging medical practitioners and assistants, many unsavoury conflicts between medical practitioners would disappear.

Current Comment.

ISO-AGGLUTININ GROUPS IN HUMAN BLOOD.

THE history of the researches into the subject of agglutination of human blood corpuscles and of the dangers associated with the introduction of the blood of one person into the veins of another has often been recorded. Usually the discovery of the phenomenon of agglutination is accredited to Landsteiner, but Drs. C. G. Guthrie and J. G. Huck recall a prior announcement by Samuel G. Shattock to the London Pathological Society a year before Landsteiner's first publication. Be this as it may, in the course of more than twenty-three years knowledge has gradually been accumulated with the result that the majority of clinicians are now satisfied that the mechanism of iso-agglutination is well understood. Briefly it may be stated that the incompatibility of the blood of two persons depends on several circumstances, the most obvious of which are the power of the blood of one person to agglutinate the corpuscles of that of a second person and its power to dissolve the red blood corpuscles of the second person. The data available indicate that human blood usually contains an agglutinin and an agglutinogen. The agglutinin which is found in the serum, is specific and acts only in the presence of a corresponding agglutinogen. Landsteiner, Moss and Jansky, as well as many others, hold that there are two kinds of agglutinins in human blood. These are labelled *A* and *B*. Similarly it is taught that there are two agglutinogens *a* and *b*. The blood of human beings is said to fall into one of four groups. Moss's group I. is held to contain no agglutinin but both agglutinogens *ab*. The serum of this group, therefore, does not agglutinate the cells of the blood of any other person. Group II. contains agglutinin *A* and agglutinogen *b*, while Group III. contains agglutinin *B* and agglutinogen *a*. The serum of the blood of Group II., therefore, will agglutinate the cells of the blood of Groups I. and III., since both contain the agglutinogen *a*. Similarly the serum of Group II. will agglutinate the cells of Groups I. and II., since both contain the agglutinogen *b*. The serum of Group IV. containing agglutinins *A* and *B*, will find a corresponding agglutinogen in the cells of the three other groups. It has no agglutinogen and consequently these cells are supposed to be safe for injection into any person. Auto-agglutinins are said to be very rare. Persons whose blood is classified under the heading of Group IV., are spoken of as universal donors for blood transfusion purposes. As a rule the grouping of the blood of a suggested donor is effected by testing the cells with the serum of the blood known to belong to Group II. and to Group III. If agglutination occurs when the serum of Group II. is used, but not when the serum of Group III is used, the donor's blood is held to belong to Group III. If the cells are agglutinated by the serum of Group III., but not by the serum of Group II., the donor's blood is placed in Group II. If no agglutination occurs, it is placed in Group IV., while if agglutination takes place

with both sera, it is believed to belong to Group I. A similar grouping is carried out by testing the serum of the suggested donor's blood against the cells of blood known to belong to Groups II. and III. Unfortunately anomalous results have been observed by every worker when cross agglutination tests have been applied to many samples of blood. Drs. C. G. Guthrie and J. G. Huck have encountered a person whose blood manifested unusual agglutination reactions.[1] The patient was suffering from a condition described as "sickle cell anæmia." The patient's cells and serum were matched against the serum and cells of blood samples of each group. When her blood cells were acted upon by the serum of Groups II. and III., it seemed as though her blood belong to Group III. But when her serum was tested with the blood cells of Groups II. and III., it was found that it had no agglutinative power. Elaborate cross-agglutination and hæmolysis tests were then carried out with the result that agglutination was obtained with the serum of Groups II. and IV. and the cells of this unsual sample, but no agglutination occurred when the serum of the patient C.T. was tested against the cells belonging to all the known groups. It was recognized that C.T.'s serum behaved like a Group I. blood, but her red cells behaved like those of a Group III. blood. The authors then examined the blood of other members of the patient's family. Several samples were tested and the same anomaly was discovered in the blood of three other members of the family. In the next place they carried out absorption experiments in order to ascertain more exactly the differences in the mechanism of the agglutination phenomena of the patient's blood and that of other persons. It will be recognized that if serum of Group II. which contains agglutinin *A* only, is brought into contact with the blood cells of Group I. or Group III. which contain agglutinogens *ab* and *a* respectively, these cells will claim all the agglutinogens *a*. If the serum is then removed from the cells by centrifugalization, it will have no further power to agglutinate cells whose agglutinogen is of the *a* variety. Similar absorption can be carried out with other sera or cells. They found that the cells of C.T.'s blood behaved just like typical Group III. cells toward sera absorbed by cells of known grouping. It would therefore seem as if this patient's blood contained no agglutinin, but *a* agglutinogen.

Drs. Guthrie and Huck point out that mathematically there are sixteen possible combinations of two agglutinins and two agglutinogens. In view of the fact that auto-agglutinin does not occur under ordinary conditions, it is necessary to exclude those combinations which would exist if the blood of a person contained agglutinogens corresponding to its agglutinins. There are, therefore, nine biological possibilities in the combinations. The usual doctrine recognizes only four: O—*ab*; *A*—*b*; *B*—*a* and *AB*—o. In addition there are O—*b*; O—*a*; *A*—o; *B*—o and O—o. These possible biological combinations and five sub-groups, one each to Groups II. and III. and three to Group IV. By employing cross-agglutination and absorption tests it is possible to recognize the existence of unusual or sub-group combinations. These studies led to the discovery of the first patient. It will be remembered that this serum failed to agglutinate the cells of any of the four known groups. The authors, therefore, are driven to the conclusion that C.T.'s blood must have contained a third agglutinin which is absent from the four groups. The corresponding agglutinogen was discovered in the cells of the other person. This person's blood behaved like Group II. blood and no irregularity was detected as long as the tests were carried out with sera or cells of the four groups. Absorption tests, however, showed that while the serum of this person (D.J.) behaved like that of a typical Group II. blood, the cells were influenced in a totally different manner. Group III. serum deprived of the specific agglutinins by the cells of Groups I. or II., still agglutinated the cells of the blood of D.J., although according to the scheme it failed to agglutinate the cells of Group II. Similarly the serum of Group IV. was still capable of agglutinating D.J.'s cells after absorption with Group I. or II. cells. After a thorough discussion of the results of investigations into the agglutinative qualities of these abnormal types of blood, the authors present a revised set of formulæ for the six groups. They are: Group I. O—*ab*; Group II. *A*—*b*; Group II. (D.J.) *A*—*bc*; Group III. *BC*—*a*; Group IV. *ABC*—o and C.T. *C*—*a*.

Drs. Guthrie and Huck have shown that there are three agglutinins and three agglutinogens. It therefore appears that there are sixty-four possible mathematical combinations, of which twenty-seven are regarded as biologically possible. In the course of their investigations they have been able to demonstrate eight of these combinations. In the case of the combination *A*—*bc* noted in D.J.'s blood, they were fortunate enough to meet with fifteen other persons manifesting in their blood the same qualities. Moreover, on searching through the literature on blood grouping, they have found irregularities that appear to indicate the presence of combinations other than those characteristic of the four main groups. They call especial attention to the work of Happ. This author found that during the first month of life iso-agglutination is rarely present. The agglutinogen appears before the agglutinin and in consequence it is held that Group I. is the first group formed and Group IV. is the last. Happ stated that the early grouping in the corpuscles before the group is established in the serum is liable to change by the acquisition of new receptors. The authors are of opinion that this finding is of importance. It might signify that the red cells of an infant contain only agglutinogen *c*, before its presence becomes overshadowed or obscured by the development of agglutinogens *a* or *b*.

In order to strengthen the position which their findings have forced them to occupy, Drs. Guthrie and Huck have inquired into the clinical evidence of reactions after transfusion at the Johns Hopkins Hospitals. A research revealed that of one hundred and sixty patients treated by transfusion by the

[1] *Bulletin of the Johns Hopkins Hospital*, February, March and April, 1923.

citrate method, about one half had a rigor and fever above 38.6° C. (101° F.). Severe reactions, manifested by rigors, vomiting, hæmoglobinuria and signs of collapse, were infrequent. They recognize that some of the mild reactions may have been due to changes in the blood after it left the vein of the donor and before it reached the vein of the recipient. They are not prepared to determine at present how often definite reactions are due to incompatibility of the donor's blood to that of the recipient, but they suggest that under the usual method of group testing, reactions of this kind might be expected. They have devised a standard method of procedure in classifying the iso-agglutinin groups. This scheme is built up on the information revealed by the authors' own experiences. It also admits of the discovery of combinations which they have not yet encountered. The immense importance of this subject renders it imperative for other workers to follow up the same line of investigation and to test the truth of Drs. Guthrie's and Huck's contentions. If their evidence can be corroborated and their deductions supported by additional data, the usual method of group testing will have to be discarded and a more elaborate one substituted.

PURE ETHER.

IN the year 1920 J. E. Lombard announced that if ethylic ether be free of the impurities commonly present in preparations sold for anæsthetic purposes, it loses its pharmacological action as an anæsthetic. R. L. Mackenzie Wallis confirmed Lombard's experiments and found that ether prepared from ethyl alcohol and pure sulphuric acid, followed by fractional distillation, was useless for the purpose of inducing anæsthesia in animals. Since that time many physiologists and bio-chemists have worked at this subject, but there has been a singular absence of further confirmation of the observations made by the two authorities mentioned. This matter has recently been revived by the appearance of a review in our columns and by the publication of a letter. In the review we expressed the opinion that it was regrettable that the author of a book should have noticed a preparation called "Ethanesal," in view of the fact that there had been no further confirmation of the claim that the anæsthetic properties of commercial ether are due to impurities. In the letter Dr. Gilbert Brown takes us to task for ignoring the teaching of Cotton, Mackenzie Wallis and others.

Cotton's claim is that the anæsthetic property of commercial ether is due to some unidentified ketones which can be removed by purification. The makers of "Ethanesal" announce that they restore these ketones to pure ether by direct addition after they have been treated with carbon dioxide and ethylene and that they thereby re-establish the efficacy of the ether. The reliability or otherwise of this proprietary preparation is a matter of small moment, although it is desirable to avoid the use of preparations the exact nature and method of production of which are not known. The important point at issue is the question whether or not commercial ether depends on ketones for its anæsthetic qualities. In this connexion it should be pointed out that no known ketone possesses the diffusibility and boiling point necessary from a physical point of view to procure inhalational anæsthesia. Acetone, the lowest of the series, has a low boiling point (56.3° C.) and is of low diffusibility. This substance was discarded by the Glasgow Committee long ago, chiefly because it is a non-halogenated substance. The next in the series is methyl-ethyl ketone and diethyl-ketone. Both have an oily consistency and their boiling points of 78.6° C. and 101.4° C. render them physically unsuited to this purpose. Hitherto no ketone has been discovered whose physical properties lend themselves to the inhalation of the vapour in sufficient concentration in air to act as an anæsthetic agent.

In the second place it is inconceivable that the carbon dioxide contained in "Ethanesal" could influence its anæsthetic power. The quantity is much too small. It requires very high tensions of carbon dioxide in the blood to produce narcosis. Ethylene, like nitrous oxide is an anæsthetic substance only when inspired in high concentrations. It is practically insoluble in water, although it is soluble in lipoids. Low concentration of this gas, such as that found in "Ethanesal," are therefore valueless for anæsthetic purposes. Recently ethylene has been employed successfully in high concentration. This fulfilled the purpose, but it was subsequently replaced by the nitrous oxide-ether sequence method, which proved more pleasant and much more rapid. It has further been replaced by the present day procedure of ethyl-chloride-ether sequence.

We learn from Dr. E. H. Embley that he has conducted some very significant experiments bearing on the question at issue. It must be remembered that the physical and lipoid solvent properties of pure ether have been studied by very many eminent chemists and physiologists. Hans Meyer's work indicated that the anæsthetic action of ether vapour was produced by its power to dissolve lipoid substances in the cells of the central nervous system. Dr. Embley undertook the purification of ether during the course of several months. He prepared about 227 kilograms of pure ether from approximately 254 kilograms of commercial rectified ether of 0.720 specific gravity. The process of purification was the chemical combination of the ether with strong sulphuric acid (specific gravity 1.84) in molecular proportion and the subsequent dissociation by the addition of water. All the impurities were thus condensed, polymerized or combined with the sulphuric acid and were thus readily separated by distillation after drying. About forty-five kilograms of this ether were further treated after thorough drying with sodium. All the samples of the purified ether were employed repeatedly as anæsthetic agents and were found to be neither more nor less powerful as anæsthetics than commercial ether with a specific gravity of 0.72. It would thus seem that both on theoretical and on practical grounds, the claims made by Cotton, Lombard and Mackenzie Wallis have not been proven.

Abstracts from Current Medical Literature.

OPHTHALMOLOGY.

The Virus of Herpes Simplex.

J. S. FRIEDENWALD (*Archives of Ophthalmology*, March, 1923) makes a distinction between *herpes zoster* and *herpes simplex*. Evidence tends to show that *herpes zoster* is an infection by a specific organism closely allied to the causative agent of chicken-pox, but this has as yet not been conclusively proved. In regard to *herpes simplex* the opposite is true. Under this term is included a variety of clinical forms such as labial, facial, genital or corneal herpes, all produced by a single specific infective organism. Though often occurring in the course of various infectious diseases, it is most frequently found as an isolated phenomenon accompanied by slight general malaise or low fever. In 1912 and 1913 Grüter produced in rabbits a violent keratitis by inoculating their corneæ with scrapings from the cornea of a patient suffering from dendritic keratitis. Later experimenters confirmed this finding and showed that the keratitis could be produced in rabbits by inoculation with material from any form of simple herpes, but not from *herpes zoster*. They further were able to transmit the disease from one rabbit to another with undiminished virulence. They could not demonstrate a visible organism but succeeded in passing the virus through a Berkefeld filter. Certain of the animals developed symptoms of a severe general disease, with paralysis and convulsions, often terminating in death, a condition strongly resembling epidemic encephalitis. Further experiments showed a definite relation between the virus of herpes and that of encephalitis. The author goes on to report his own experimental work. He inoculated the corneæ of rabbits from patients suffering from facial herpes of different kinds and from patients with dendritic keratitis and produced lesions in twelve of thirteen rabbits. He inoculated also from other corneal lesions and from nasal and buccal secretion, normal and abnormal, and in fifteen instances failed to produce a lesion. The infection usually shows itself in eighteen to thirty-six hours after inoculation, runs an acute course and begins to subside on the seventh day. Among fifty-eight rabbits successfully inoculated on the cornea twelve developed encephalitic symptoms and six died. The path of the virus from the cornea to the brain is probably along the sensory nerves of the cornea. Pathological changes were found in the brain, in the gasserian ganglion and trigeminal nerve.

Hereditary Glaucoma Simplex.

A. C. SNELL (*New York State Journal of Medicine*, April, 1923) classifies glaucoma as infantile, juvenile and senile. The first is the familiar buphthalmos or congenital glaucoma and is confined to the first decade. The juvenile or hereditary form manifests itself from the tenth to the fortieth year, it is always a direct inheritance and appears in consecutive generations. Contrasted with the enormous cornea of buphthalmos the cornea is small, *id est* under twelve millimetres. The anterior chamber is shallow and the form may be acute or chronic and finally the sclerotic has its normal colour. Half the patients are myopic. An instance is described in which the father developed glaucoma at fifty and the son at thirty-five years of age—an example of "anticipation." Another family is reported in which the mother suffered from glaucoma when sixteen, the eldest son at fifteen years and a daughter shortly after thirteen. All these were myopic to the extent of about five dioptres. The two brothers had coloboma of the optic nerve and the girl a persistent nerve sheath surrounding the disc. Iridectomy seems to be of little value, probably trephining is the most suitable operation.

The Fundus Oculi in the Toxæmias of Pregnancy.

J. H. BEHAN (*New York State Journal of Medicine*, April, 1923) makes a plea for the antenatal prevention or treatment of eye diseases of pregnancy. He reports the history of a woman with ocular syphilis treated intensively with "Salvarsan" and mercury who, though she lost the child, retained her sight. A second instance is that of a woman who showing signs of kidney trouble had antenatal care during her first two pregnancies with good results. She then neglected medical advice and had two miscarriages. Later when she was six months pregnant and had nephritis and papilloedema, she sought advice. As part of routine antenatal care there should be at least one ophthalmoscopic examination.

Amaurotic Family Idiocy.

MARTIN COHEN (*Archives of Ophthalmology*, March, 1923) recalls the first description of this disease in 1881 by Warren Tay in a Jewish child. Three years later he reported two more instances in the same family, the disease being described as "symmetrical changes in the region of the yellow spot in each eye." Sachs published his account independently about the same time and called it amaurotic family idiocy. The recognized symptom-complex was the familial factor, cherry red spot at the macula, progressive mental impairment and the Jewish parentage. Lately doubt has been thrown on the belief that only Jewish children were affected. Torrence. of Glasgow, has reported an instance in a non-Jewish child. A form of the disease affecting older children has been recorded as a juvenile type occurring more often in non-Jewish children. The author bases his remarks on the history of an Italian female child of fourteen months who presented symptoms of the disease. She was not Jewish and had not the fundi been examined the diagnosis would have been missed. Examination of the fundi is essential to the diagnosis in general nervous diseases of all infants.

Bitemporal Contraction of the Visual Field.

E. HILL (*American Journal of Ophthalmology*, April, 1923) reports forty conditions of neurological interest. The patients were submitted to detailed perimetric study and the author concludes that bitemporal hemianopsia in its various degrees can no longer be considered a physical sign solely of pituitary tumour. Twenty-seven instances were classed as instances of hypopituitarism. They were characterized by low percentage of blood sugar, subnormal temperature, slow pulse and low blood pressure, drowsiness and asthenia. The *sella turcica* may show diminished capacity with large clinoid processes, or it may be abnormally large and indicate an enlarged gland of deficient activity. Such pituitary glands may have passed from a state of hyperfunction to one of hypofunction. Primary atrophy is the most common expression of damage to the optic nerves by a pituitary overgrowth. Other signs of secretory deficiency are smallness of frame, stubby hands and tapering fingers, cutaneous pigmentation, diminished growth of hair, dry skin, excessive body fat, absence of sexual power. Sixeen patients showed upper temporal slants in the visual field, fourteen had enlarged blind spots and there were instances of bitemporal contraction, homonymous hemianopsia, concentric contraction and tubular fields. Twelve patients suffered from recurrent convulsions which might be termed pituitary epilepsy. Headache was a feature in seventeen instances. The pain was described as deep seated in the region of the temples or as a sensation of "water rolling in the head." An encephalitis may attack the pituitary gland and a meningitis about the chiasma can produce pressure causing bitemporal contraction. Many of these conditions call for pituitary therapy often with good results. Three patients in the series showed striking evidence of hyperpituitarism and were affected by early acromegaly and gigantism. They did not give evidence of abnormal sellæ. Cerebral syphilis may produce secondary pressure effects on the chiasma, or the pituitary body may be directly attacked by syphilis. Hydrocephalus was noted in two patients and in these the upper temporal quadrants were not more contracted than the lower. The optic discs in one patient were covered by a small amount of exudation which obscured its edges. In the other was seen primary atrophy. Six patients were believed to have tumours; they presented characteristic fields.

Solarization in Trachoma.

J. W. WRIGHT (*American Journal of Ophthalmology*, April, 1923) advocates the use of concentrated solar light for the treatment of trachoma, especially in the presence of corneal ulcer. He

concentrates the rays by means of a ten or twelve dioptre convex lens and passes them gradually over the granulated surface. He does not allow them to be confined for any time to one spot for fear of burning. Applications twice a week are usually sufficient and more than three applications have rarely been found necessary to clear up an ulcer or six applications to remove the granules.

LARYNGOLOGY AND OTOLOGY.

Oto-sclerosis Paradoxus.

ALBERT A. GRAY (*The Journal of Laryngology and Otology*, March, 1923) records the histories of four patients with undoubted oto-sclerosis who exhibited improvement in hearing in circumstances in which an interference of hearing was expected. The first patient's hearing was remarkably enhanced whenever she got a cold in the head. The second patient's hearing was improved during annual attacks of hay fever and her hearing was best when the paroxysms were most continuous and violent. The improvement disappeared in these patients with the passing of the coryza and hay fever respectively. The other two patients each showed a remarkable improvement in hearing lasting for about two minutes. This was of sudden onset and disappearance and occurred when they were in an exhausted state and when the surrounding atmosphere was hot and close. A cool draught from an opened window in one instance and a dessertspoonful of brandy in the other brought about the auditory enhancement. Similar conditions later failed to produce the improvement. The author recalls that the inhalation of amyl nitrite in many patients with oto-sclerosis produces a temporary improvement of hearing. In such patients the vaso-motor system undergoes a sudden change; the author thinks that it is possible that in the third and fourth patients in his series a similar change occurred.

Brain Tumour.

D. E. S. WISHART (*The Journal of Laryngology and Otology*, March, 1923) has tabulated his findings from otological examination of twelve patients with brain tumour verified at operation or autopsy. None of the patients had a history or evidence of any middle-ear disease except one. This patient had had double *otitis media* in childhood which had quickly and entirely healed. The histories of seven of these patients he gives in detail; he has added notes of the others. The tumours are divided into a sub-tentorial group with intra-cerebellar and extra-cerebellar types and a supra-tentorial group. In addition to the histories of each group, the author gives a valuable detailed commentary on the findings. He found that tumours of the frontal lobes did not interfere with cochlear or vestibular function, that the extra-cerebellar tumours affected homolateral cochlear and vestibular function and that intra-cerebellar tumours did not interfere with vestibular function. The latter was affected more or less according to the size and situation of the growth. The interference tended to be bilaterally symmetrical and the functions of both vertical canal reflex-arcs were affected before those of either horizontal canal.

Temporo-sphenoidal Abscess.

FRANCIS MUECKE (*The Journal of Laryngology and Otology*, February, 1923) believes in eliminating thoroughly all diseases in the mastoid and middle ear and especially the attic and zygomatic cells of patients with temporo-sphenoidal abscess. The exposure of as small an area of *dura mater* as is consistent with removal of necrosed bone and the making of only a small linear incision in the dura both tend to prevent the formation of a cerebral hernia. If there is not found a direct tract through the tegmen it is advisable to wait, if possible, one day after exposing the *dura mater* before excising it. Three brain punctures only are advised, one forwards and upwards, one directly upwards, one backwards and upwards. The forceps must be kept moderately superficial. Lavage of the abscess cavity is unnecessary and often dangerous. A stiff rubber tube 0.3 to 0.6 centimetre (one eighth to a quarter of an inch) in diameter with side holes in its upper part is recommended and is so placed as to rest on the lower shelf of the chiselled-out mastoid. On no account should an anæsthetic be given for subsequent probing. The dressing should be carried out daily and very thoroughly, the tube should be removed, cleaned and replaced. It is shortened gradually as symptoms indicate. The abscesses are frequently multiple and further explorations may be needed. If there are signs of the development of hernia, the mastoid cavity should be packed firmly with gauze soaked in spirit.

Unusual Tonsil Appendage.

A. LOGAN TURNER (*Proceedings of the Royal Society of Medicine*, February, 1923) reports the condition of a tonsil (the left) removed from an adult male. From the tonsil there projected downwards an appendage measuring 2.5 centimetres in length and 0.7 centimetre in its greatest transverse diameter. The appendage consisted of a core of fibrous tissue in which were embedded a number of islets of cartilage. The author states that this finding supports the view that cartilage in the tonsils is of embryonic origin and does not result from a metaphasia of the connective tissue.

Late Hereditary Syphilis and Lupus.

GEORGES PORTMANN (*New York Medical Journal and Medical Record*, May 3, 1922) discusses the difficulty in diagnosis in cases of hereditary syphilis and chronic tuberculosis of a lupous character. The former generally appears between the ages of eight and twenty-five years on the soft palate, in the nose, the arch of the palate and the back portion of the pharynx. Lupus most frequently occurs in adult females in the nasal vestibule, on the cartilaginous septum, the epiglottis, the aryepiglottic folds, faucial pillars and both surfaces of the cheeks. Both conditions may coexist and may also coalesce. The diagnosis may be impossible without laboratory tests. During the period of induration the gumma is a red, smooth, localized tumour at first, but later softer. During a similar period in lupus reddish granulations appear on an infiltrated, rosy, softened mucosa. The gumma soon softens, craters form and these unite into a serpigenous ulceration with red, overhanging edges. Rapid destruction may occur. Ulceration in lupus is much slower and less destructive, the ulcer edges are thinner and less well defined and pain, tenderness and enlarged glands accompany the process. In syphilis, however, the sensitiveness of parts is blunted. Lupus developes into nodular, pale and retractile scars, but syphilitic cicatrices are star-shaped, sunken and pallid. Hutchinson's triad must be looked for as well as hydrarthrosis. Personal and family histories must be reviewed and laboratory tests made.

Transnasal Laryngeal Medication.

A METHOD advocated by DUNDAS GRANT (*The Journal of Laryngology and Otology*, June, 1922) for laryngeal medication in laryngeal phthisis is as follows: About two cubic centimetres (half a drachm) of an oily solution is poured slowly by a fifteen cubic centimetre (half ounce) glass syringe into the patient's nostril while he is sitting up with the head thrown back and the mouth open. Gentle breathing is carried on and any inclination to swallow is absolutely resisted by voluntary effort on the part of the patient. A suitable solution is one part of eucalyptol to nineteen of oil of sweet almonds, with sufficient methylene blue to colour it. If this nauseates the patient, a 1% solution of menthol in olive oil may be tried. The latter has been found useful in influenzal cough.

Mastoiditis Hyperplastica Serosa.

J. W. JERVEY (*The Journal of the American Medical Association*, July 29, 1922) states that he has encountered at least five patients with the following syndrome due to *mastoiditis hyperplastica serosa*: impairment of hearing, vague pains in or about the ear, parietal headache, intermittent "bubbling" deep in the ear, mastoid tenderness on deep pressure, hyperæmia and thickening of superior-posterior quadrant of drum and sagging of contiguous part of meatal wall, drops of serous exudate seen through drug and absence of response to Rinné's test. There was no febrile reaction or blood change. On operation he found thickened cell walls in the mastoid, extensive osteoporosis and the cell walls and antrum were filled with clear, yellowish serum. Recovery was uneventful.

Special Abstract.

FILARIASIS IN THE PACIFIC ISLANDS.

THE London School of Tropical Medicine, that extraordinary organization that extends its beneficent activities to the utmost ends of the world, commissioned Dr. F. W. O'Connor, its Wandsworth Scholar, in 1919 to journey from London to the Gilbert and Ellice Islands for the purpose of controlling by scientific methods the claims made that certain arsenic compounds were efficacious in the treatment of filariasis. Incidentally Dr. O'Connor was called upon to study the hygiene and the incidence of disease of these islands. Circumstances—Providence and a strike of seamen—combined to detain him first in Sydney and later in Samoa. This second detention provided him with an opportunity of making some preliminary investigations concerning the incidence of disease among the natives of the Samoan group of islands. A visit was paid to the Tokelau or Union group of islands on the journey to the Ellice Islands and some interesting observations were made here. On his return from Funafuti he received a very tempting invitation from the Administration of the British islands of the Samoan group to establish himself at the Government Hospital in Apia. From these headquarters he completed his disease survey of about twenty islands before returning to London. He has now published a report of his mission as a special Research Memoir of the London School of Tropical Medicine.[1] He was accompanied by Dr. A. E. Ridsdale who joined as volunteer, and by Mr. C. E. Berry, laboratory assistant.

Local Conditions.

Brief reference should be made to the contents of a chapter on the geography, topography and climate of the island and on the customs and habits of the inhabitants. The Samoan group consists of eight inhabited islands and an uninhabited atoll. The four islands under the administration of New Zealand are Upolu, Monono, Alolima and Savaii, of which the first named is the largest, having an area of five hundred and eighty square miles. The four islands under the control of the United States of America are Tutuila, Tau, Opu and Olesega. The volcanic origin of the islands is evidenced by the extinct craters and the smouldering crater of Savaii. The rock is lava covered superficially by clay. The coast is low, save where recent flows of lava end in bluffs. There is a belt of coral reef outside the coast line, forming a submerged cliff on which the surf breaks. The Samoans live on the low-lying coastal country. Their villages are situated close to streams and are surrounded by cocoanut plantations, taro swamp and bush. The huts comprise a thatch supported on wooden pillars. In bad weather mats are slung as walls for protection. The floor is matted.

The Union and the Ellice Islands are atolls. The former group comprises four small islands with a total population of about one thousand persons. There are nine small islands in the Ellice group. The inhabitants number about three thousand, two hundred. The climate of these islands is similar to that of Samoa, although it is more humid and not quite as hot. The drier and cooler season in Samoa is characterized by the south-east trade winds. It lasts from March or April until November. Then comes the hot and rainy season with variable winds. The average temperature in December is 27.7° C. (81.9° F.) and that in June is 25.9° C. (78.7° F.). The average rainfall is 454.7 centimetres (179.02 inches).

The inhabitants of these islands are clean. They bathe freely. Dr. O'Connor states that he did not observe any fleas, bugs or body lice, although *Pediculi capitis* were often encountered. They sleep on the floor under mosquito nets. Civilization, so-called, has made inroads on these estimable people and inflicted irreparable injury. The corrugated roof and European furniture have ruined the open, healthy dwellings; European clothing, too, is just as pernicious. Dr. O'Connor says that the natives do not understand that they have to change this unsuitable clothing when it is wet. Their cooking is performed in a separate shed. The vegetables are well cooked, but not so the meat. The entrails of the pigs are consumed. They eat largely and sleep a great deal.

In connexion with the sanitary arrangements, the author finds that the drop latrine placed on a rude pier jutting out to the low water mark is quite insufficient. Garbage and rubbish are thrown into the bush. Flies are consequently abundant. The natives expectorate under the mats in their huts. Pigs are domesticated. Dogs and cats are relatively scarce and are at times eaten as a delicacy.

The Samoans wander considerable distances. As the mosquito vector of filariasis is prevalent in every island, this disease is spread far and wide. The diseases found in all the islands are anchylostomiasis, filariasis, frambœsia, tuberculosis and skin affections. Eye diseases are common in Samoa and fish poisoning in the southern Ellice Islands. Leprosy was seen in Samoa, but not in the Ellice or the Tokelau Islands.

Filariasis.

As a preliminary study Dr. O'Connor examined the blood a large number of natives. It appears that the normal red blood corpuscle count was between four and a half and five and a half millions per cubic millimetre. The leucocyte counts revealed that the normal count is somewhat higher than it is in Europeans. The only peculiar characteristic of the leucocytes is in connexion with the eosinophile cells. Relatively high degrees of eosinophilia are common among those affected with a single or multiple helminthiasis.

In 1910 Manson-Bahr adduced evidence to prove that the main mosquito transmitting filariæ to man was the *Stegomyia pseudo-scutallaris* (often spoken of as *Aedes variegatus*). Dr. O'Connor's observations confirm this. In the Tokelau Islands filariasis is endemic and the only mosquito is *Stegomyia pseudo-scutellaris*. In the other islands the frequency of filariasis appears to be proportional to the abundance of this mosquito. In the Ellice Islands *Culex jepsoni* is very prevalent. Filariasis occurs in these islands, but its incidence follows the density of the *Stegomyia pseudo-scutellaris* population and not that of the *Culex jepsoni*. In Samoa six species of mosquito are present: *Stegomyia fasciata, Stegomyia pseudo-scutellaris, Finlaya kochi, Culex fatigans, Culex jepsoni* and *Ochlerotatus vexans*. *Finlaya kochi* is extremely abundant, but this mosquito is absent in some of the Ellice Islands where filariasis is common, while the incidence of filariasis in Samoa is less than in the Ellice Islands where *Stegomyia pseudo-scutellaris* is more common. Dr. O'Connor carried out experiments with *Stegomyia pseudo-scutellaris* bred in cages. The mosquitoes were fed to natives whose blood contained relatively large numbers of micro-filariasis. A few mosquitoes survived and several of these were found to harbour the mature filaria larvæ in their heads. In other experiments conducted with mosquitoes caught in the bush and in native huts, a search was made for larval filariæ. Infestation in the thorax, head or proboscis was detected seven times. Similar experiments with *Finlaya kochi, Culex fatigans* and *Culex jepsoni* led to the detection of a few parasites recognized as the larvæ of filaria, but the development of the worm seemed to be arrested within the first week.

Observations on the development of the filaria in *Stegomyia pseudo-scutellaris* revealed a similar life history to that described by Manson-Bahr. In the stomach of the mosquito the micro-filaria usually cast its sheath within an hour. After from twenty to thirty hours the larvæ were found in the thorax of the mosquito and at this stage the tail became evident. About the third day large broad forms were seen and on the fourth day the majority of the filariæ reached this stage of development. The tail spot continued to enlarge until the seventh day. On the fifth day the arrangement of the cells of the alimentary tract in two layers was noted. Then a further layer of cells appeared inside the cuticle to form the body cavity

[1] "Researches in the Western Pacific: Research Memoirs of the London School of Tropical Medicine," Volume IV., by Francis W. O'Connor, M.R.C.S. (England), L.R.C.P. (London), D.P.M. & H. (Cambridge); London, 1923.

between it and the digestive layer. On the seventh day the œsophagus was distinct. The anal papillæ are three in number, two being placed laterally and one is terminal. They appeared about the eighth day. Dr. O'Connor suggests that the function of these papillæ is to fix the posterior end during the boring movements of the anterior end whilst the filaria is penetrating the skin of the mammalian host.

The micro-filariæ were studied in dried and stained blood films both during the day and the night time in large numbers of instances. No periodicity was found. The micro-filariæ had the same appearance as *Micro-filaria bancrofti*. Their number in a measured quantity of blood remained more or less constant. Degeneration forms, with shrunken middle and posterior ends, were encountered. In the last stage these dead specimens had a granular, structureless appearance. Other specimens differing from the usual forms are described as new-born embryos. These are thicker but not shorter than the usual forms, the nuclei are less numerous and the tail spot is not well differentiated. They are motile, like the ordinary micro-filariæ.

Dr. O'Connor gives a short description of the habits and breeding places of the *Stegomyia psuedo-scutellaris*. It appears that this mosquito seeks shade and still air. It is active at dawn, just before sunset and when rain is threatening during the day. It abounds in the small atolls where there is ample bush, but is absent from the large atolls on account of the lack of shade. It breeds in fresh water with decaying vegetable matter, chiefly in holes and crevices in trees, in cracks of lava, in hollows in cocoanut palms and in the husks and shells of cocoanuts. The larval life is from ten to twelve days from the hatching of the egg. In the island of Funafuti he was able to organize a band of fifty men who cleared the bush and burned the stacked vegetable matter. In this way he was able to clear the small island of nearly all the mosquitoss.

The incidence of filariasis was determined by the presence of micro-filariæ, by the recognition of the typical signs of filariasis and by the signs of elephantiasis. Dr. O'Connor is satisfied that elephantiasis is a manifestation of filariasis. A high micro-filarial incidence was found in places where there was a high incidence of elephantiasis. It appears that the incidence of the disease was higher among the Eurasians than among the Europeans.

After dealing with the clinical signs and course of filariasis he adds a summary of the methods of treatment adopted and the results obtained from each drug tried. "Nov-arseno-billon" and "Galyl" were tried, but no improvement was noted. Similarly "Kharsivan" failed to improve the patient's condition. The other medicaments employed were tartar emetic, "Stibenyl," "Collosal Selenium," "Collosal Manganese," "Collosal Copper" and quinine hydrochloride. None of these drugs had the slightest effect on the filarial condition or on the elephantiasis.

Full information is given concerning the frequency and type of disease found in the several islands. The account will be found of value for further research into the types and incidence of filariasis in different parts of the world.

Other Diseases.

Of other diseases encountered in these islands, intestinal helminthiasis, tuberculosis, yaws and venereal diseases are mentioned. The common intestinal worms are the hookworm, chiefly *Necatur americanus*, while *Anchylostoma duodenale* and *Anchylostoma cylanicum* are present at times. *Ascaris lumbricoides* was encountered in Samoa and *Trichuris trichura* was also noted.

Tuberculosis is widespread and extremely fatal. In young children tuberculous peritonitis accounts for very many deaths. Tuberculosis of the lymphatic glands of the neck is common in older children and adolescents and usually leads to a fatal pulmonary infection.

Frambœsia is very common on all the islands. Dr. O'Connor has seen all the varieties described and has little to add to the existing descriptions. He is unconvinced of the existence of venereal disease among the Polynesian population of the islands. In Samoa he noted gonorrhœa in a Chinaman. A few cases of syphilis were seen both in the Ellice Islands and in Samoa, but this disease is certainly uncommon. He suggests that the reported prevalence has been due to confusion of yaws with this disease.

Fish Poisoning.

A short chapter on fish poisoning in the Ellice group is very disappointing. It appears that during the last fifty years the natives have noted that fish caught in a particular locality are very poisonous when eaten either by man or by domestic animals. The fish comprise a sea perch, an eel, a wrasse and a bream. The tail end is the least toxic, while the head is the most dangerous. The symptoms are abdominal pain, nausea, vomiting and diarrhœa, headache and backache, tenderness of muscles and paresis. It is stated that the flesh has acquired its toxic properties as a result of the effects of the submarine volcanic disturbance which liberated large quantities of floating pumice. Dr. O'Connor has apparently not been able to investigate the chemistry of the poison nor the toxicological evidence. He determined the presence of engorgement of the mesenteric vessels, with hyperæmia of the walls of the small intestine, in a cat fed with poisonous fish. There was also some congestion of the liver and of the membranes of the brain and spinal cord.

Animal Parasitology.

The last part of the monograph is devoted to the parasites of animals and to the life histories of the two common mosquitoes. It is interesting to learn that, despite the statement made by McNaughton that micro-filariæ can be found in the blood of nearly all hens, pigs and dogs in Funafuti, Dr. O'Connor discovered in two dogs the embryos of *Dinofilaria immitis* and in one horse *Micro-filaria equisanguinis*. With these exceptions no evidence of filariasis in hens, dogs or pigs was found. Of other parasites *Entamœba suis*, *Iodamœba buetschlii* and *Balantidium coli* were noted. In regard to the second protozoon, Dr. O'Connor at first thought that he had encountered a new species and published a preliminary account of the parasite in THE MEDICAL JOURNAL OF AUSTRALIA, of October 2, 1920 (page 337). He has since found that the refractile rods observed in his earlier specimens were inconstant and not characteristic. Of interest is the fact that the fæces of pigs contained a worm held to be identical with *Anchylostomum duodenale*. Slight differences from the common human parasite were noted. Unfortunately his specimens were lost on his return voyage. It is now suggested that the parasite may be *Anchylostomum ceylanicum*, *Anchylostomum duodenale* is rarely found in man in the Ellice Islands. *Globocephalus connorfilii* and *Crassisoma samoense* were found frequently in pigs. In some instances an ascaris worm was noted.

Mosquitoes.

The following data concerning the life history and habits of *Stegomyia pseudo-scutellaris* deserve special mention. The eggs of this mosquito are laid singly close to the water line. At times female extrude many eggs just prior to death. The eggs when laid are white, but within fifteen minutes they become a dull grey and within forty minutes a shiny black. They hatch in from twenty-six to thirty hours. During the larval and pupal stages the insect can exist with very little moisture. Pupation takes place on the ninth or tenth day. This stage lasts from thirty to forty-eight hours.

The bite of this mosquito is quite painless and produced a mild reaction. The fully developed insect succumbs rapidly when exposed to direct sunlight. It does not fly far from its breeding place. It hides at night time in dry holes, under leaves or behind separated bark of trees or under the roofing of native houses. The males swarm at the opening of the breeding places in day time when the females visit these places. Pairing takes place on the wing. When the females attack man in numbers, the males congregate in the vicinity.

The *Finlaya kochi* lays her eggs in a single row at night time. Dr. O'Connor has found that one female may lay fifty-two eggs during one sitting of two hours' duration. The larva can wriggle, swim and creep. Well-grown larvæ feed on their younger brethren. Pupation takes place about ten days after the hatching of the egg. The pupal stage occupies from twenty-four to forty-eight hours. The

fully formed mosquito is aggressive at night time. Its bite is very painful. It makes a deliberate investigation of a mosquito net and can work through netting sixteen meshes to the inch. It requires blood to live. It dies in captivity if fed on juice. The male never leaves its native taro plantations.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE SECTION OF PSYCHIATRY AND NEUROLOGY OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Medical Society Hall on April 16, 1923, DR. J. W. SPRINGTHORPE, the President, in the chair.

Feeble-mindedness and Delinquency.

DR. M. GAMBLE read a paper entitled "Feeble-mindedness and Delinquency" (see page 55).

Diploma of Psychiatry.

The following resolution was passed for presentation to the Faculty of Medicine of the University of Melbourne:

> That this Section of the Victorian Branch of the British Medical Association begs to direct the attention of the Faculty of Medicine to the fact that the University of Sydney has recently instituted a course for a diploma in psychiatry and further, that this Section urges that similar steps be at once taken by the Faculty of Medicine of the Melbourne University to institute a course and diploma in psychiatry or psychological medicine for adoption by the University Council and Senate."

A sub-committee consisting of Dr. J. W. Springthorpe, Dr. M. Gamble, Dr. Jean Grieg and Dr. Paul Dane was appointed to inquire into the problem of the feeble-minded and to report to the next meeting of the Section, with a view to the further discussion of the subject.

The Treatment of Ichthyosis.

DR. D. GIFFORD CROLL, C.B.E., informs us that the remarks made by him in the discussion on Dr. J. G. Avery's case of ichthyosis at the meeting of the Queensland Branch of the British Medical Association on May 3 ,1923 (see THE MEDICAL JOURNAL OF AUSTRALIA, July 7, 1923, page 20) have been incorrectly reported. He said at the meeting that he had shown a patient with this condition at the Australasian Medical Congress, Brisbane, 1920, and that another speaker had suggested the administration of thyreoid extract. Since that time he had seen ichthyosis in another patient treated by exposure to X-rays with moderately successful results. He adds that he has not employed thyreoid extract in the treatment of this condition. He is, of course, unable to say whether the improvement resulting from the exposure to X-rays will be permanent.

MEDICO-POLITICAL.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Walter and Eliza Hall Institute for Research in Pathology and Medicine, Melbourne Hospital, on July 4, 1923, Dr. L. S. Latham, the President, in the chair.

Library Facilities.

DR. JAMES BOOTH moved:

> That with a view to increasing the usefulness of the Library and bringing it more or less up-to-date the Honorary Librarians be requested to confer with representatives from the Medical School, the Public Library and the Royal Society and consult with the authorities of the Public Library in order to devise a plan whereby the medical works therein can be inspected by medical practitioners.

MR. W. KENT HUGHES seconded the motion which was carried.

Australasian Medical Congress (British Medical Association.

A resolution of the Council to the following effect was moved by DR. R. H. FETHERSTON:

> That the Branch give a ball to members of the Australasian Medical Congress (British Medical Association) in November next and that the President of the Victorian Branch act as host.

The motion was seconded by Mr. W. Kent Hughes and was carried.

Subscriptions.

The following amendment of Rule 6 was presented by the Council:

That the following be added to Rule 6:

> Provided that any member of not less than ten years' standing as such who has definitely and permanently retired from active practice of the medical profession and his signed and transmitted to the Honorary Treasurer a declaration to that effect, shall pay a subscription at the rate of two-thirds the full annual subscriptions. Provided also that any member of not less than forty years' standing as such shall pay the same rate.

DR. J. NEWMAN MORRIS in moving this amendment explained that the Council had considered on various occasions individual cases in which a member had found it difficult to maintain his membership after retirement from practice. The motion provided for a remission of portion of the subscription under such circumstances and, if carried, it would bring the Victorian Branch into line with the parent Association and with the New South Wales Branch on this point.

The motion was seconded by Mr. W. Kent Hughes. A short discussion followed and motion was then carried without opposition.

Meetings of Council.

Dr. J. Newman Morris moved on behalf of the Council:

That in Rule 17 there be deleted the following: "The Council shall meet . . . administration of the Branch" and the following substituted:

> The Council shall meet in general on the third Wednesday in each month at such time and place in Melbourne as the Council may determine, but it shall have power to vary the day for any of its meetings. The Council shall have the general executive administration of the Branch and it shall have power to appoint sub-committees and it may by resolution delegate executive powers to any sub-committee except in matters of policy. The Council shall determine the quorum for each sub-committee. As far as possible the sub-committees shall meet once a month on the fixed days appointed by the Council, provided that should there be no business to be transacted, such meetings shall lapse. All transactions of these committees shall be referred to the next subsequent meeting of the Council for confirmation.

Dr. Morris said that if this amendment of the Rules were adopted, it would diminish the number of Council meetings and reduce the demands upon the time of the members of the Council. The proposed alteration of the rule had been drafted after due consideration and he felt confident that, if adopted, it would not lead to any loss of efficiency or sacrifice of the interests of the Branch. He wished to point out that no general delegation of executive powers to sub-committees was contemplated and the proposal merely gave the Council the power to delegate by resolution executive powers to any sub-committee, except in matters of policy. Some provision of this nature was needed to enable the sub-committee to transact urgent business.

MR. VICTOR HURLEY, C.M.G., seconded the motion which was carried without dissent.

New Branch Buildings.

Mr. W. Kent Hughes moved:

> That this meeting approved of a scheme for forming a company for acquiring a building site for B.M.A. buildings. Such company shall bind itself to sell the property to the Victorian Branch of the British Medical Association at cost price.

He said that during the last three or four years the Building Sub-Committee of the Council had given a great deal of consideration to the question of a new building which would provide up-to-date hall, library and office accommodation for the Branch. He felt sure that all would agree as to the necessity for a new building. The present Medical Society Hall was altogether inadequate for the needs of the Branch. In this respect the Victorian Branch was not as far advanced as the Branches in the other States. The Building Sub-Committee had been seriously handicapped by the fact that the Branch could not acquire property and they had experienced the disappointment of having to allow the opportunity of purchasing several desirable properties to pass. The matter was urgent. As some months would elapse before the Branch could become incorporated, he asked the meeting to approve of the formation of a company whose members would be members of the Victorian Branch, so that they could take action if a favourable offer should be made pending the incorporation of the Branch. He advocated the purchase of a central site upon which a revenue-producing building would be erected. In this way the Branch could become possessed of a suitable home of its own.

The motion was seconded by DR. J. W. DUNBAR HOOPER, who said that the necessity for a new building had received very earnest consideration by the Building Sub-Committee. While they regarded the Medical Society Hall with affection, they were scarcely proud of it. It had been noticeable to him when travelling that the Branches of the British Medical Association in other centres were possessed of handsome and commodious buildings.

DR. S. S. ARGYLE, M.L.A., supported the motion and made the suggestion, which was accepted by Mr. Kent Hughes and embodied in the motion, that the proposed company should undertake to sell the property to the Victorian Branch of the British Medical Association, when the latter body had become incorporated and in a position to own property.

A general discussion of ways and means ensued. Eventually the motion was carried.

ENTERTAINMENT OF DR. J. H. ANDERSON, C.M.G., C.B.E.

A LARGE number of members of the Victorian Branch of the British Medical Association assembled on June 29, 1923, at the Mia Mia tea rooms to bid farewell to Dr. J. H. Anderson, C.M.G., C.B.E., prior to his departure for England. Dr. L. S. Latham, the President, was in the chair.

DR. LATHAM said that it was a matter for general regret that Dr. Anderson was about to leave Australia. The members of the Branch were desirous of expressing their appreciation of his sterling personal qualities and of his extremely valuable and successful labours in the Council of the Branch and in the work of Post-Graduate Committee. Dr. Anderson had carried out very effective work as Convenor of the Scientific Sub-Committee of the Council and had been very enthusiastic and energetic in the cause of post-graduate work in Melbourne.

PROFESSOR R. J. A. BERRY proposed the health of Dr. Anderson. He spoke as having been in close association with Dr. Anderson for seven years in the School of Anatomy at the Melbourne University. He had for some time past indulged the hope that his successor in the chair would be an Australian and that such Australian would be Dr. J. H. Anderson. Their guest, however, was seeking a career in England and he carried with him their hearty good wishes for his future welfare.

DR. R. R. STAWELL supported the toast and asked Dr. Anderson to accept a tangible expression of the high esteem in which he was held by his fellow members of the Victorian Branch.

DR. A. V. M. ANDERSON, on behalf of the members of the Melbourne Permanent Committee for Post-Graduate Work, presented Dr. Anderson with an illuminated address artistically wrought on vellum.

DR. J. H. ANDERSON, in acknowledging the gift and the kind remarks of the several speakers, said that he found it impossible adequately to express his thanks. Reference had been made to his association with post-graduate work in Melbourne. The idea of such work had first come into his mind in June, 1918, when he had been asked by Sir Neville Howse what provision he was making for the post-graduate needs of the young medical officers of the Australian Imperial Force. Till that time post-graduate work had always been associated for him with Vienna or New York or other place far afield, but he then had a vision of a big post-graduate association in his own University city. When he returned from active service in 1920 he had found post-graduate classes in being under the guidance of the Victorian Branch. The Council at a later date had taken steps which had resulted in the formation of the Melbourne Permanent Committee for Post-Graduate Work. It was interesting to note, in passing, that after much experimenting and difficulty the medical profession in London were just adopting a constitution similar to that of their own Committee.

He liked the sound of the word "Permanent" in the name of the Committee. He could visualize the work going on, spreading and increasing in importance and value after many of them had attended their last class.

Dr. Anderson recalled that the Committee had started with one post-graduate course a year. In the period, October, 1922, to October, 1923, they would have seen the usual November course, the winter course, the course for the M.D. examination, various lectures at three country centres and a special course by Professor C. J. Martin, of the Lister Institute.

Their credit balance in the beginning was a gift of £17 from the Victorian Branch of the British Medical Association and the current winter course had an entry fee of nearly one hundred graduates who contributed about £200 in entrance fees. They were doing well for the town men, but the country practitioners had not yet received their full share. He knew and appreciated their difficulties and would like to see arrangements made by which any man in the country could receive a full résumé of any medical paper he wanted, a list of literature on any subject he liked to name and a good written opinion on any case of which he furnished the necessary data. In addition he would like to see the Post-Graduate Committee issue annual proceedings, letting out an account of every lecture and demonstration given under its control.

Two men had contributed largely to the success of the post-graduate work in Melbourne. One was Dr. Dunbar Hooper. His tact and total effacement of self-interest throughout had been invaluable. The other was Dr. Hume Turnbull. After much deliberation he had been asked to deliver the first course of winter lectures and the magnificent series of lcetures to which many of them had had the pleasure of listening, had set the standard for post-graduate work in Melbourne.

They were deeply indebted to the various lecturers and demonstrators and he felt that he must refer to the splendid spirit of the audiences. The attendances indicated that a splendid search after knowledge existed among the graduates of Melbourne. He refused to think that the men joining the classes were actuated by a selfish desire to increase incomes; their motive was rather a desire to benefit their patients and it was such as one looked to find in those who practised a profession and did not merely drive a trade. The vision of the Post-Graduate Committee was to make Melbourne the centre for post-graduate teaching in Australia.

Dr. Anderson said that he had been very happy in his work at the University, but he had felt at times the disadvantage of its detachment from clinical work. This had

been overcome in part by the kindness of the members of the various hospital administrations in making positions as clinical assistants. But he wished to urge the practising members of the profession to visit the University more frequently. In nearly seven years at a University department, he could not remember one full-dress inspection by the members of the medical profession, the Council of the Branch, or even the governing body of the University.

There were tremendous potentialities for good going to seed at the University. Medicine's future was said to be laid in bio-chemistry and although they had at the University a most distinguished bio-chemist, he was afraid that the medical profession were not making anything like full use of his powers. Research, post-graduate work and the University should go hand in hand. A research hospital in close touch with the University was the objective all desired. It was, perhaps, too much to expect at present. He could, however, visualize a research clinic. It would be staffed by the Director of the Walter and Eliza Hall Institute, the senior lecturers in pathology, physiology and anatomy. Such an out-patient clinic would attack some special problem and to it would be sent selected patients from all the other clinics of the hospitals. Valuable results might emanate from such a clinic. Which hospital would establish it first?

His reasons for leaving the University were mainly financial and those for leaving Australia purely domestic. He sincerely and humbly thanked the members present for the abundant evidences of their kindly feelings towards himself.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

ALLEN, RAYMUND ASHER MILTON, M.B., Ch.M., 1922 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

ANNETTS, HENRY ALLAN, M.B., Ch.M., 1922 (Univ. Sydney), Hillston.

FINLAY, CLYDE CECIL, M.B., Ch.M., 1923 (Univ. Sydney), 2, Orr Street, Bondi.

GEORGE, WILLIAM ELLIS, M.B., Ch.M., 1922 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

MINOGUE, SYLVESTER JOHN, M.B., Ch.M., 1922 (Univ. Sydney), Mental Hospital, Parramatta.

Congress Notes.

AUSTRALASIAN MEDICAL CONGRESS (BRITISH MEDICAL ASSOCIATION).

THE Executive Committee of the first session of the Australasian Medical Congress (British Medical Association) desire us to remind members of the Association that it is desirable for those who intend to take part in the Congress, to enrol at an early date. The notification should be sent to the local Secretary in the State in which the intending member resides, and should be accompanied by a remittance of two guineas.

Accommodation.

As the accommodation in hotels is limited, members who intend to attend the Congress are advised to lose no time in securing rooms. Application should be made to the manager of the hotel selected.

Museum Committee.

The Honorary Secretary of the Museum Committee, Dr. Alfred J. Trinca, of 61, Collins Street, Melbourne, announces that his committee proposed to arrange an exhibit in the museum illustrating the hobbies, pursuits and collecting habits of medical men when not engaged in their ordinary professional work. It is known that certain members of the medical profession engage in such pastimes as cabinet making, entomology, botany and the like. An invitation is extended to these practitioners to contribute an exhibit of their work for the museum of the Congress. In addition collections of articles of interest, such as antique surgical

House.	Address.	Persons to Accommodate.	Rooms.		Tariff.	
			Double	Single.	Per Day.	Per Wk.
Scott's	Collins Street West, Melbourne	26	6	14	23s.	
Windsor (formerly Grand)	Spring Street, Melbourne	200	—	—	20s.	
Carlyon's	Spencer Street, Melbourne	30	—	—	Single Room, 5s.; Double Rooms, 10s.; Meals as taken	
Union Club	Collins Street West, Melbourne	6	—	—	20s.	
New Treasury	Spring Street, Melbourne	20	—	—	16s.	£4 4s.
Port Phillip	Flinders Street, Melbourne	30	—	—	15s.	
Victoria Coffee Palace	Collins Street East, Melbourne	200	—	—	Single Rooms, 3s. 6d. and 4s. 6d.; Double Rooms, 6s., and 10s.; Meals as taken	
Federal Palace	Collins Street West, Melbourne	200	—	—	11s. 6d. to 20s.	
Cathedral Hotel	Swanston Street, Melbourne	12	—	—	10s. 6d.	£3 3s.
Esplanade (Carlyon's)	Esplanade, St. Kilda	6	—	—	20s.	
George	Fitzroy Street, St. Kilda	40	20	—	15s.	
Ritz	Fitzroy Street, St. Kilda	30	—	—	20s.	
Prince of Wales	Fitzroy Street, St. Kilda	30	15	—	13s. 6d.	
Beaconsfield	Beaconsfield Parade, St. Kilda	25	—	—	15s.	
Inverleigh	12, Acland Street, St. Kilda	11	4	3		
Victoria Hotel	South Melbourne	30	—	—		£5 5s. to £6 6s.
Bridge Hotel	Mordialloc (15 miles by electric train)	14	4	6	12s.	£3 3s.
Hampton Hotel	Hampton (10 miles by electric train)	12	—	—	15s.	£3 3s.
Royal Terminus (Kemp)	Brighton Beach (9 miles)	10–12	—	—		£5 5s.
Beaumaris Hotel	Beaumaris (11 miles by motor to rail in November)	20	—	—	15s.	£4 4s.
Mentone Hotel	Mentone (13 miles by electric train)	20–50	—	—	15s.	£4 4s.

instruments, would be acceptable. Intending exhibitors are requested to notify the Honorary Secretary of the Museum Committee, giving particulars concerning the nature of the proposed exhibit, its size and the space required for display.

Correspondence.

GROUP TESTING OF BLOOD FOR TRANSFUSION.

SIR: The letter of Dr. J. R. L. Willis, appearing under the above heading in your journal of seventh instant, is very *à propos*, coming as it does at a time when from the result of recent work done on blood grouping, it would appear that our ideas on the question have been founded on insufficient knowledge.

As many of your readers may not have had an opportunity of perusing the reports of the important researches on this subject conducted by Guthrie and Huck which appeared in the *Bulletin of the Johns Hopkins Hospital* (February, March and April, 1923), I take this opportunity of replying to Dr. Willis's query and also of drawing attention to this recently published and most important contribution to the subject.

The existence of four iso-agglutinin groups (instead of three as originally suggested by Landsteiner) has been generally recognized since 1909, when Moss published his paper giving the classification which is now used.

Under this system of classification two agglutinins (A and B) and third (AB) which is a combination of the other two, are used to explain the action of the four blood groups—the corresponding agglutinogens of the red blood cells being indicated by *a*, *b* and *ab*.

The four recognized groups may then be expressed by the following formulæ:

	Agglutinin.	Agglutinogen.
Group I.	O	*ab*
Group II.	A	*b*
Group III.	B	*a*
Group IV.	AB	*o*

Guthrie and Huck have pointed out that the mathematical combinations of these agglutinins and agglutinogens are sixteen, but after elimination of the combinations which would result in auto-agglutination, the biological possibilities are nine, four of which are represented by the present four groups, leaving five unrecognized. In the course of their researches, they have encountered bloods in which combinations existed other than are included in the four standard groups, but these unusual combinations could only be determined when cross-agglutinations were carried out. Using the standard Group II. and Group III. sera for classifying these unusual bloods, the first one encountered appeared to fall into one of the recognized groups (Group III.). When, however, tested contrariwise *id est* the red cells of Groups II. and III. were tested against the unknown serum, the latter fell into Group I. instead of into Group II. By a series of cross-agglutination tests and absorption tests they showed that this unknown blood was represented by a formula hitherto unrecognized, *id est*: Agglutinin O, agglutinogen *a*.

Extending their researches they have found that a third agglutinin C occurred in certain bloods, and agglutinogen *c* being also demonstrable. This results in fresh combinations with the previous A and B and AB agglutinins, the biological possibilities being twenty-seven, of which eight have already been determined while indications point to the fact that many more actually exist. This means that instead of four groups as recognized there are already eight which have been determined and probably many more. The practical significance of this lies in the fact that of recent years blood transfusion has become more widely used and in the selection of donors it has been the custom to test the suitability with standard Group II. and Group III. sera.

With the recognition of at least eight groups and the hitherto unsuspected combinations of agglutinins and correspondingly of agglutinogins, it is no longer safe to rely on this method of testing. The only sure method if catastrophes are to be avoided is to match the serum of the recipient against the donor's cells. A small amount of blood is taken from the recipient and the serum obtained and this is matched against some corpuscles of the donor. (The latter are collected into 3.5% citrate and washed by centrifugalization and a 10% suspension made.) A similar procedure is carried out with the donor's serum and the recipient's cells. The test can be done by adding one drop of red cell suspension to two or three drops of recipient's serum on a glass slide. Agglutination appears in a few minutes and can be observed with the naked eye. For some time—though quite by chance—I have been using this method and to my knowledge there has never followed any reaction whatever when the bloods have been matched in this way. Apart from the anomalies that may result when the grouping is done by standard Groups II. and III. sera, as indicated above, the method is also dangerous inasmuch as the standard sera are generally kept for a considerable time and are apt to suddenly lose their titre, in which case false results would obtain which may perhaps only become obvious by a catastrophe in the course of the subsequent transfusion.

Yours, etc.,

CYRIL H. SHEARMAN.

26, College Street, Sydney,
July 10, 1923.

THE AUSTRALASIAN MEDICAL CONGRESS (BRITISH MEDICAL ASSOCIATION).

SIR: I should be much obliged to any member who would kindly furnish me with information for Congress purposes regarding any cases operated on by me for cancer of the body or *cervix uteri*.

Yours, etc.,

RALPH WORRALL.

221, Macquarie Street, Sydney,
July 9, 1923.

THE MESTIZOS OF KISAR.

SIR: I regret that your issue of July 7 containing an article by Ernst Rodenwaldt on "The Mestizos of Kisser" has reached me on the verge of departure on an extended tour. Otherwise I would be able to do more justice to his statements.

The information as to the descent of the families dealt with in my article in your columns of January 14, 1922, was obtained officially from the Dutch Resident, at Koepang. It had been collected by an officer of the East Indies Civil Service and gave the detailed genealogical trees of the several families.

Rodenwaldt's statement concerning the absence of malaria in Kisar is flatly and totally incorrect. I found the typical enlarged spleen in several children examined and other local evidence of malaria was self-evident.

If Rodenwaldt would go to Kisar and observe and inquire for himself as I did, he would perhaps be less positive in his assertions. His article bristles with statements which reveal the dilettante anthropologist, and show a profound ignorance of the history and the facts of the subjects with which he deals in so superior a manner.

Yours, etc.,

J. S. C. ELKINGTON.

Department of Health and Quarantine Service,
Eagle Street, Brisbane,
July 9, 1923.

Books Received.

MEDICAL PROOF OF THE MIRACULOUS: A CLINICAL STUDY, by E. Le Bec, Paris, President of the Bureau des Constatations, Lourdes; Translated from the French by Dom. H. E. Izard, O.S.B., L.R.C.S., M.R.C.P., with an Introduction by Ernest E. Ware, M.D., M.R.C.S. London; 1922. London: Harding & More, Limited; Sydney: Angus and Robertson, Limited; Crown 8vo., pp. xv. + 198, with ten Illustrations. Price: 6s. 6d. net.

CEREBRO-SPINAL FLUID IN HEALTH AND IN DISEASE, by Abraham Levinson, B.S., M.D., with a Foreword by Ludvig Hektoen, M.D.; Second Edition, Thoroughly Revised; 1923. St. Louis, U.S.A.: C. V. Mosby Company; Demy 8vo., pp. 267, with 69 illustrations. Price: $5.00.

THE TONSILS FAUCIAL, LINGUAL AND PHARYNGEAL: WITH SOME ACCOUNT OF THE POSTERIOR AND LATERAL PHARYNGEAL NODULES, by Harry A. Barnes, M.D.; Second Edition; 1923. St. Louis, U.S.A.: C. V. Mosby Company; Demy 8vo., pp. 217, with 45 illustrations. Price: $5.00.

TONSILLECTOMY BY MEANS OF THE ALVEOLAR EMINENCE OF THE MANDIBLE AND A GUILLOTINE: WITH A REVIEW OF THE COLLATERAL ISSUES, by Greenfield Sluder, M.D.; 1923. St. Louis, U.S.A.: C. V. Mosby Company; Royal 8vo., pp. 176, with 90 illustrations. Price: $5.00.

Proceedings of the Australian Medical Boards.

NEW SOUTH WALES.

THE undermentioned have been registered under the provisions of the *Medical Act, 1912 and 1915*, as duly qualified medical practitioners:

JONES, EDWARD CHARLES BELL, M.B., Bac. Surg., 1923, (Univ. Melbourne), Balranald.

Registration of Additional Qualifications.

BROWN, ULRIC LYLE, Ch.M., 1923 (Univ. Sydney).
CUTHBERT, NOEL MILLAR, Ch.M., 1923 (Univ. Sydney).
DOWNES, CLEMENT JAMES, Ch.M., 1923 (Univ. Sydney).
D'OMBRAIN, ARTHUR WOLSELEY, Ch.M., 1923 (Univ. Sydney).
DUN, CHARLES WILLIAM SUTHERLAND, Ch.M., 1923 (Univ. Sydney).
HUNT, PERCIVAL SYDNEY, Ch.M., 1923 (Univ. Sydney).
KINSELLA, VICTOR JOHN, Ch.M., 1923 (Univ. Sydney).

VICTORIA.

THE undermentioned have been registered under the provisions of the *Medical Act, 1915*, as duly qualified medical practitioners:

BREW, GEORGE ALEXANDER, M.B., B.S., 1923 (Univ. Melbourne), 139, Stevenson Street, Kew.

SMITH, LLEWELLYN MEREDITH, M.B., B.S., 1923 (Univ. Melbourne), Yarragon.

WATERHOUSE, GEORGE ALAN, M.B., B.S., 1923 (Univ. Melbourne), 13, High Street, Launceston, Tasmania.

Names of Deceased Practitioners Removed from the Register.

DAMMAN, GEORGE WILLIAM.
MCGOWAN, ALEXANDER GERALD.
WATSON, GEORGE GLENDINNING.

TASMANIA.

THE undermentioned have been registered under the provisions of *The Medical Act, 1918*, as duly qualified medical practitioners:

LERMITTE, EDWARD AUGUSTUS, M.B., B.S., 1894 (Univ. Durham), St. Mary's.

SIMPSON, NORMAN MOIR, M.B., B.S., 1919 (Univ. Melbourne), Franklin.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii.

ROYAL ALEXANDRA HOSPITAL FOR CHILDREN, SYDNEY: Honorary Assistant Bacteriologist.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmain United Friendly Societies' Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phœnix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

Diary for the Month.

JULY 24.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.
JULY 25.—Western Medical Association (Parkes), New South Wales.
JULY 26.—South Australian Branch, B.M.A.: Branch.
JULY 26.—Brisbane Hospital for Sick Children: Clinical Meeting.
JULY 27.—New South Wales Branch, B.M.A.: Branch.
JULY 27.—Queensland Branch, B.M.A.: Council.
AUG. 1.—Victorian Branch, B.M.A.: Branch.
AUG. 3.—Queensland Branch, B.M.A.: Branch.
AUG. 8.—Western Australian Branch, B.M.A.: Council.
AUG. 8.—Melbourne Pædiatric Society.
AUG. 10.—New South Wales Branch, B.M.A.: Clinical Meeting.
AUG. 10.—Queensland Branch, B.M.A.: Council.
AUG. 10.—South Australian Branch, B.M.A.: Council.
AUG. 14.—New South Wales Branch, B.M.A.: Ethics Committee.
AUG. 15.—Victorian Branch, B.M.A.: Council.
AUG. 15.—Western Australian Branch, B.M.A.: Branch.
AUG. 16.—City Medical Association, New South Wales.
AUG. 21.—New South Wales Branch, B.M.A.: Executive and Finance Committee.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)

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